

Correlation of the Understanding Math 2008© Programs With the Illinois Mathematics Performance Descriptors Grade 8

The programs are designed for use in a variety of teaching and learning environments ranging from a teacher-centered approach with one computer to a student-centered lab approach. The lessons may also be used in remediation, tutorials, intervention, resource, and fast-tracking.

Organization of the Understanding Math 2008© Programs

The Understanding Math 2008© series of programs consists of the following nine programs:

Understanding Whole Numbers and Integers	Understanding Equations
Understanding Measurement and Geometry	Understanding Probability
Understanding Fractions	Understanding Algebra
Understanding Graphing	Understanding Exponents
Understanding Percent	

Each program contains several sections with several topics. Every topic has the following:

- 1) an interactive concept introduction, usually with a variety of graphic approaches;
- 2) a number of particular examples;
- 3) practice questions with random questions, but specific feedback;
- 4) a topic test with random questions and tracking;
- 5) on-line worksheets selected from our website (www.neufeldmath.com).

Teachers may also search for specific topics using our search engine at <http://www.corr.neufeldmath.com>.

The grade level performance descriptors have been correlated to the Understanding Math 2008© programs. The location of each grade level performance descriptors is listed below:

Goal 6

- 6A** Students who meet the standard can demonstrate knowledge and use of numbers and their many representations in a broad range of theoretical and practical settings. (*Representations*)
- Stage G (pages 5 - 6)
 - Stage H (pages 6 - 8)
 - Stage I (pages 8 - 10)
- 6B** Students who meet the standard can investigate, represent, and solve problems using number facts, operations and their properties, algorithms, and relationships. (*Operations and properties*)
- Stage G (pages 11 - 15)
 - Stage H (pages 15 - 21)
 - Stage I (pages 21 - 22)
- 6C** Students who meet the standard can compute and estimate using mental mathematics, paper-and-pencil methods, calculators, and computers. (*Choice of method*)
- Stage G (pages 23 - 23)
 - Stage H (pages 23 - 23)
 - Stage I (pages 23 - 23)
- 6D** Students who meet the standard can solve problems using comparison of quantities, ratios, proportions, and percents.
- Stage G (pages 24 - 26)
 - Stage H (pages 26 - 27)
 - Stage I (pages 27 - 27)

Goal 7

- 7A** Students who meet the standard can measure and compare quantities using appropriate units, instruments, and methods. (*Performance and conversion of measurements*)
- Stage G (pages 28 - 28)
 - Stage H (pages 28 - 28)
 - Stage I (pages 29 - 29)
- 7B** Students who meet the standard can estimate measurements and determine acceptable levels of accuracy. (*Estimation*)
- Stage G (pages 30 - 30)
 - Stage H (pages 30 - 30)
 - Stage I (pages 30 - 30)
- 7C** Students who meet the standard can select and use appropriate technology, instruments, and formulas to solve problems, interpret results, and communicate findings. (*Progression from selection of appropriate tools and methods to application of measurements to solve problems*)
- Stage G (pages 31 - 34)
 - Stage H (pages 34 - 36)
 - Stage I (pages 36 - 39)



Goal 8

- 8A** Students who meet the standard can describe numerical relationships using variables and patterns. (*Representations and algebraic manipulations*)
- | | |
|---------|-----------------|
| Stage G | (pages 40 - 42) |
| Stage H | (pages 42 - 44) |
| Stage I | (pages 44 - 50) |
- 8B** Students who meet the standard can interpret and describe numerical relationships using tables, graphs, and symbols. (*Connections of representations including the rate of change*)
- | | |
|---------|-----------------|
| Stage G | (pages 51 - 51) |
| Stage H | (pages 51 - 53) |
| Stage I | (pages 53 - 58) |
- 8C** Students who meet the standard can solve problems using systems of numbers and their properties. (*Problem solving*)
- | | |
|---------|-----------------|
| Stage G | (pages 58 – 59) |
| Stage H | (pages 59 - 61) |
| Stage I | (pages 61 - 61) |
- 8D** Students who meet the standard can use algebraic concepts and procedures to represent and solve problems. (*Connection of 8A, 8B, 8C to solve problems*)
- | | |
|---------|-----------------|
| Stage G | (pages 62 - 62) |
| Stage H | (pages 62 - 63) |
| Stage I | (pages 63 - 65) |

Goal 9

- 9A** Students who meet the standard can demonstrate and apply geometric concepts involving points, lines, planes, and space. (*Properties of single figures, coordinate geometry and constructions*)
- | | |
|---------|-----------------|
| Stage G | (pages 66 - 68) |
| Stage H | (pages 68 - 71) |
| Stage I | (pages 71 - 75) |
- 9B** Students who meet the standard can identify, describe, classify and compare relationships using points, lines, planes, and solids. (*Connections between and among multiple geometric figures*)
- | | |
|---------|-----------------|
| Stage G | (pages 75 - 76) |
| Stage H | (pages 76 - 77) |
| Stage I | (pages 77 - 78) |
- 9C** Students who meet the standard can construct convincing arguments and proofs to solve problems. (*Justifications of conjectures and conclusions*)
- | | |
|---------|-----------------|
| Stage G | (pages 79 - 80) |
| Stage H | (pages 80 - 80) |
| Stage I | (pages 80 - 81) |
- 9D** Students who meet the standard can use trigonometric ratios and circular functions to solve problems.
- | | |
|---------|-----------------|
| Stage G | (pages 81 - 81) |
| Stage H | (pages 82 - 82) |
| Stage I | (pages 82 - 82) |

Goal 10

- 10A** Students who meet the standard can organize, describe and make predictions from existing data. (*Data Analysis*)
- Stage G (pages 83 - 84)
 - Stage H (pages 84 - 85)
 - Stage I (pages 85 - 86)
- 10B** Students who meet the standard can formulate questions, design data collection methods, gather and analyze data, and communicate findings. (*Data Collection*)
- Stage G (pages 86 - 86)
 - Stage H (pages 86 - 86)
 - Stage I (pages 87 - 87)
- 10C** Students who meet the standard can determine, describe and apply the probabilities of events. (*Probability, including counting techniques*)
- Stage G (pages 87 - 88)
 - Stage H (pages 89 - 91)
 - Stage I (pages 91 - 92)

Grade level performance descriptors that are **not included** in the current Understanding Math 2008© programs are noted as *not yet correlated*.

For lesson planning purposes, there is space in the chart for notes, material lists, links, resources etc.



**Illinois Mathematics Performance Descriptors
Correlated to Understanding Math 2008 ©
Grade 8**

Goal 6

6A *Students who meet the standard can demonstrate knowledge and use of numbers and their many representations in a broad range of theoretical and practical settings. (Representations)*

Stage G

1. Represent any large number using scientific notation.

Understanding Exponents 2008

Section 4: Scientific Notation

Why Use Scientific Notation?

Scientific Notation for Large Numbers

Introduction

Chart

The Rule

The Steps

Notes

2. Show relationships between sets of numbers, including rational numbers, whole numbers, natural numbers, and integers.

Understanding Whole Numbers and Integers 2008

Section 4: The Meaning of Integers

Integers Around Us

Temperature

Helicopter

Submarine

Elevator

Integer Line

Notes

Understanding Fractions 2008

Section 1: The Meaning of Fractions

Comparison of Fractions

The Symbol- Greater Than - Ex 1

The Symbol- Greater Than - Ex 2

The Symbol- Less Than - Ex 1

The Symbol- Less Than - Ex 2

The Symbol- Greater and Less Than - Ex 1

The Symbol- Greater and Less Than - Ex 2

Concept 1 - Fractions Strips

Concept 2- Example 1

Concept 2- Example 2

Notes



Fractions on a Number Line

Concept 2- Example 3
Concept 2- Example 4
Halves
Thirds
Quarters
Summary
Place Them- Example 1
Place Them- Example 2
Place Them- Example 3
Place Them- Example 4

Stage H

1. Recognize and use exponential, scientific, and calculator notation.

Understanding Exponents 2008

Notes

Section 1: The Meaning of Exponents

Introduction... The Money Game

Money Grab Game Show
Graphs... Game Show Results
Graphs... Compare The Two Results

Introduction... Bacteria Doubling

Introduction... Paper Folding

Experiment
Pattern

Exponents, Powers, Bases

Powerful Explosions

Introductory Examples

Example 1
Example 2
Example 3
Example 4
Example 5

Understanding Exponents 2008

Notes

Section 4: Scientific Notation

Why Use Scientific Notation?

Scientific Notation for Large Numbers

Introduction
Chart
The Rule
The Steps



2. Represent, order, and compare rational numbers using a variety of methods and materials.

Understanding Fractions 2008

Notes

Section 1: The Meaning of Fractions

Comparison of Fractions

The Symbol- Greater Than - Ex 1
The Symbol- Greater Than - Ex 2
The Symbol- Less Than - Ex 1
The Symbol- Less Than - Ex 2
The Symbol- Greater and Less Than - Ex 1
The Symbol- Greater and Less Than - Ex 2
Concept 1 - Fractions Strips
Concept 2- Example 1
Concept 2- Example 2
Concept 2- Example 3
Concept 2- Example 4

Fractions on a Number Line

Halves
Thirds
Quarters
Summary
Place Them- Example 1
Place Them- Example 2
Place Them- Example 3
Place Them- Example 4

Understanding Fractions 2008

Notes

Section 3: Equivalent Fractions

Introduction

Square
Triangle

Pattern Blocks

Hexagon 1
Hexagon 2

Fraction Strips

Concept 1
Concept 2

The Clock

Introduction 1
Introduction 2
Examples (randomly generated)

On a Square Grid

Example 1
Example 2
Example 3
Example 4
Example 5

On a Dot Grid

Example 1
Example 2
Example 3
Example 4



Slicing	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6
An Explanation With Sets	Case 1 Case 2 Summary
Equivalent Fractions on a Number Line Comparison of Fractions	

3. Place rational numbers on a number line.

Understanding Fractions 2008		Notes
Section 1: The Meaning of Fractions		
Fractions on a Number Line	Halves Thirds Quarters Summary Place Them- Example 1 Place Them- Example 2 Place Them- Example 3 Place Them- Example 4	
Understanding Fractions 2008		Notes
Section 3: Equivalent Fractions		
Equivalent Fractions on a Number Line Comparison of Fractions		

Stage I

1. Illustrate the relationship between second and third roots and powers of a number.

Understanding Exponents 2008		Notes
Section 5 : Square Root		
Squaring Numbers	Examples 1 Examples 2	
Square Roots Radical Signs Example Questions	3. Lawn Questions	



2. Organize problem situations using matrices.

Not yet correlated

3. Represent, order, and compare real numbers.

Understanding Whole Numbers and Integers 2008

Notes

Section 1: The Meaning of Whole Numbers

Expanded Notation	The number line
Represent Numbers in Many Ways	Example 1
	Example 2
	Example 3
	Example 4
	Example 5
Place Value to 999 999	Examples- Example 1
	Examples- Example 2
	Examples- Example 3
	Examples- Example 4
	Examples- Example 5
Millions	The number line- Example 1
	The number line- Example 2
	The number line- Example 3
Billions	Examples- Example 1
	Examples- Example 2
	Examples- Example 3
	Examples- Example 4
Comparing Large Numbers	The number line
	Example
	Example 1
	Example 2
Ordering Large Numbers	Example 3
	Example 4
	Example 1
	Example 2
	Example 3
	Example 4

Understanding Fractions 2008

Notes

Section 5: Introduction to Decimals

Comparing Decimals	Example 1
	Example 2
	Example 3
	Example 4



Ordering Decimals	Introduction Example 1 Example 2 Example 3 Example 4	
4. Place real numbers on a number line.		
Understanding Whole Numbers and Integers 2008		Notes
Section 1: The Meaning of Whole Numbers		
Place Value to 999 999	The number line- Example 1 The number line- Example 2 The number line- Example 3	
Understanding Whole Numbers and Integers 2008		Notes
Section 4: The Meaning of Integers		
Comparing Integers	Example 1 Example 2 Explanation Example 3 Example 4	
Example Questions	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6	
Understanding Fractions 2008		Notes
Section 1: The Meaning of Fractions		
Fractions on a Number Line	Halves Thirds Quarters Summary Place Them- Example 1 Place Them- Example 2 Place Them- Example 3 Place Them- Example 4	
Understanding Exponents 2008		Notes
Section 5 : Square Root		
Estimating Square Roots	Example 1 Example 2	
Estimating Square Roots on the Number Line		



6B Students who meet the standard can investigate, represent and solve problems using number facts, operations, and their properties, algorithms, and relationships. (Operations and properties)

Stage G

1. Write prime factorizations using exponents.

Understanding Fractions 2008

Notes

Section 2: Products, Multiples, Factors

Factors

Factor Trees- Example 1
 Factor Trees- Example 2
 Factor Trees- Example 3
 Factor Trees- Example 4

2. Describe relationships between prime factorizations and properties of squares, primes, and composites.

Understanding Fractions 2008

Notes

Section 2: Products, Multiples, Factors

Factors

Introduction- Factors of 8
 Introduction- Factors of 12
 Introduction- Factors of 16
 Introduction- Factors of 20
 Introduction- Factors of 5
 Introduction- Factors of 15
 Introduction- Factors of 18
 Prime Numbers- 2
 Prime Numbers- 3
 Prime Numbers- 5
 Prime Numbers- 7
 Prime Numbers- 11
 Prime Numbers- 13
 Prime Numbers- 17
 Prime Numbers- 19
 Composite Numbers

3. Classify numbers according to the number of whole number factors (e.g., square numbers have an odd number of factors).

Understanding Fractions 2008

Notes

Section 2: Products, Multiples, Factors

Factors

Introduction- Factors of 8
 Introduction- Factors of 12
 Introduction- Factors of 16
 Introduction- Factors of 20



Introduction- Factors of 5
 Introduction- Factors of 15
 Introduction- Factors of 18

4. Demonstrate and describe the effects of multiplying or dividing by a fraction less than or greater than one.

Understanding Fractions 2008

Notes

Section 10: Multiplying Fractions

Pattern Blocks	Hexagon 1 Hexagon 2 Hexagon 3
Fraction Strips	Concept 1 Concept 2
Word Problems	Boris' Money Maria's Trip
Developing the Rule	Example 1 Example 2
A Summary The Meaning of "OF"	

Understanding Fractions 2008

Notes

Section 11: Dividing Fractions

Understanding Division	Recall from Whole Numbers Introduction
Examples With Diagrams	Soda Pop Ice Cream Shape 1 Shape 2
Patterns from Examples Another Explanation	Example 1 Example 2
Examples Without Diagrams	Numerical Example 1 Numerical Example 2 Central High School
Practice Questions	10 questions (randomly generated)

5. Simplify arithmetic expressions containing exponents using the field properties and the order of operations.

Understanding Whole Numbers and Integers 2008

Notes

Section 9: Order of Operations

Order in Addition - Integers	Trial 1 Trial 2 Conclusion
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Order in Multiplication - Integers	Example 1 Example 2 Trial 1 Trial 2 Conclusion
Why Use Order of Operations? - Integers Example Questions - Integers	Example 1 Example 2 BEDMAS- Example 1 BEDMAS- Example 2 BEDMAS- Example 3 BEDMAS- Example 4 BEDMAS- Example 5 BEDMAS- Example 6 BEDMAS- Example 7 BEDMAS- Example 8 BEDMAS- Example 9 BEDMAS- Example 10 Please Excuse My Dear Aunt Sally- Example 1 Please Excuse My Dear Aunt Sally- Example 2 Please Excuse My Dear Aunt Sally- Example 3 Please Excuse My Dear Aunt Sally- Example 4 Please Excuse My Dear Aunt Sally- Example 5 Please Excuse My Dear Aunt Sally- Example 6 Please Excuse My Dear Aunt Sally- Example 7 Please Excuse My Dear Aunt Sally- Example 8 Please Excuse My Dear Aunt Sally- Example 9 Please Excuse My Dear Aunt Sally- Example 10
Word Problems	Shipping Babysitting Garbage
Practice Questions	BEDMAS- 10 questions (randomly generated) Please Excuse My Dear Aunt Sally- 10 questions (randomly generated)
Understanding Exponents 2008 Section 3: Exponent Rules	Notes
In The Topic Multiplication of Powers with the Same Base	Expanding the Exponents The Pattern In General
Division of Powers with the Same Base	Expanding the Exponents The Pattern In General



Raising a Power to an Exponent	Expanding the Exponents The Pattern In General
Raising a Product to an Exponent	Expand the Exponent In General
A Power with Exponent 0	Explanation with b Explanation with a Summary
A Power with a NEGATIVE Exponent	Method 1 - Explanation with b Method 1 - Explanation with k Method - Bacteria Doubling Summary
Summary of Exponent Rules	

6. Justify rules of divisibility for 2, 5, and 10.

Understanding Whole Numbers and Integers 2008		Notes
Section 3: Multiplying and Dividing Whole Numbers		
The 10 x 10 Multiplication Table	User Picks	
Patterns in Multiplication	Patterns in Multiplication by 10	
Understanding Fractions 2008		Notes
Section 2: Products, Multiples, Factors		
Divisibility	Example 1 Example 2 Example 3	

7. Solve multi-step number sentences and word problems with rational numbers using the four basic operations.

Understanding Fractions 2008		Notes
Section 8: Adding Fractions		
Word Problems	Alexander's Friend Eating Candy Goal Scoring Taking a Walk	
Understanding Fractions 2008		Notes
Section 9: Subtracting Fractions		
Word Problems	Pedro and Alex's Race Washing the Cars Planting a Garden	



<p>Understanding Fractions 2008 Section 10: Multiplying Fractions Word Problems</p>	<p>Boris' Money Maria's Trip</p>	<p>Notes</p>
<p>Understanding Fractions 2008 Section 11: Dividing Fractions Examples Without Diagrams</p>	<p>Numerical Example 1 Numerical Example 2 Central High School</p>	<p>Notes</p>
<p>Understanding Fractions 2008 Section 12: Order of Operations Order in Addition</p> <p>Order in Multiplication</p> <p>Why use Order of Operations? BEDMAS Please Excuse My Dear Aunt Sally Example Questions</p> <p>Practice Questions</p>	<p>Trial 1 Trial 2 Conclusion Example 1 Example 2</p> <p>Trial 1 Trial 2 Conclusion Example 1 Example 2</p> <p>Example 1 Example 2 Example 3</p> <p>3 questions (randomly generated)</p>	<p>Notes</p>
<p>Stage H</p>		
<p>1. Determine the least common multiple and greatest common factor of a set of numbers using prime factorization containing exponents.</p>		
<p>Understanding Fractions 2008 Section 2: Products, Multiples, Factors Least Common Multiple</p>	<p>The Concept Example 1 Example 2 Example 3</p>	<p>Notes</p>



Factors	Example 4 Factor Trees- Example 1 Factor Trees- Example 2 Factor Trees- Example 3 Factor Trees- Example 4
Greatest Common Factor	Introduction 12 and 18 30 and 40 70 and 42
Venn Diagrams - Factors	Example 1 Example 2 Example 3

2. Determine and describe the effects of arithmetic operations with decimals and integers (e.g., multiply by a decimal between zero and one, divide by a negative integer).

Understanding Whole Numbers and Integers 2008		Notes
Section 5: Adding Integers		
In This Topic		
Elevators... An Introduction to Addition	Example 1 Example 2 Example 3 Example 4 Summary... Using Elevators	
Markers... An Introduction to Addition	An Introduction to Addition Opposites Example 1 Example 2 Example 3 Example 4	
Understanding Whole Numbers and Integers 2008		Notes
Section 6: Subtracting Integers		
Elevators... An Introduction to Subtraction	Example 1 Example 2 Example 3 Example 4 Summary... Using Elevators	
Understanding Whole Numbers and Integers 2008		Notes
Section 7: Multiplying Integers		
Positive Integers x Positive Integers	Example 1 Example 2	



Positive Integers x Negative Integers	Example 1 Example 2
Negative Integers x Positive Integers	Method 1 Method 2
Negative Integers x Negative Integers	Example 1 Example 2 Pattern #1 Pattern #2
Summary #1... Sign	
Summary #2... Sign	
Example Questions	Example 1 Example 2 Example 3 Example 4 Example 5

Understanding Whole Numbers and Integers 2008

Notes

Section 8: Dividing Integers

Division to Multiplication	
The Division Table	Instructions Patterns Practice (10 questions randomly generated)
The Inverse of Multiplication	Example 1 Example 2
Summary #1... Sign	
Summary #2... Sign	
Examples	Example 1 Example 2 Example 3 Example 4

Understanding Fractions 2008

Notes

Section 14: Addition and Subtraction of Decimals

Adding Decimals	Click and Drag- 5 questions (randomly generated) Tenths -The Pencil- Example 1 Tenths -The Pencil- Example 2 Tenths -The Pencil- Example 3 Tenths -The Pencil- Example 4 Tenths -The Pencil- Example 5 Tenths -The Line- Example 1 Tenths -The Line- Example 2 Tenths -The Line- Example 3 Tenths -The Line- Example 4
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Subtracting Decimals

Hundredths -The Town- Example 1 (randomly generated maps)
Hundredths -The Town- Example 2 (randomly generated maps)
Hundredths -The Town- Example 3 (randomly generated maps)
Hundredths -The Town- Example 4 (randomly generated maps)
Method 1 -Partial Sums- Example 1 -With Grids
Method 1 -Partial Sums- Example 2 -With Grids
Method 1 -Partial Sums- Example 3 -Without Grids
Method 1 -Partial Sums- Example 4 -Without Grids
Method 1 -Partial Sums- Example 5 -Without Grids
Method 1 -Partial Sums- Example 6 -Without Grids
Method 2 -Columns- Example 1 -With Grids
Method 2 -Columns- Example 2 -With Grids
Method 2 -Columns- Example 3 -Without Grids
Method 2 -Columns- Example 4 -Without Grids
Method 2 -Columns- Example 5 -Without Grids
Method 2 -Columns- Example 6 -Without Grids
Method 3 -Right to Left- Example 1 -With Grids
Method 3 -Right to Left- Example 2 -With Grids
Method 3 -Right to Left- Example 3 -Without Grids
Method 3 -Right to Left- Example 4 -Without Grids
Method 3 -Right to Left- Example 5 -Without Grids
Method 3 -Right to Left- Example 6 -Without Grids
Click and Drag- 5 questions (randomly generated)
Tenths - The Pencil- Example 1
Tenths - The Pencil- Example 2
Tenths - The Pencil- Example 3
Tenths - The Pencil- Example 4
Tenths - The Pencil- Example 5
Hundredths - The Field- Example 1
Hundredths - The Field- Example 2
Hundredths - The Field- Example 3
Hundredths - The Field- Example 4
Method 1 - Right to Left- Example 1 -With Grids
Method 1 - Right to Left- Example 2 -With Grids
Method 1 - Right to Left- Example 3 -Without Grids
Method 1 - Right to Left- Example 4 -Without Grids
Method 1 - Right to Left- Example 5 -Without Grids
Method 1 - Right to Left- Example 6 -Without Grids
Method 2 - Trade First- Example 1 -With Grids
Method 2 - Trade First- Example 2 -With Grids
Method 2 - Trade First- Example 3 -Without Grids
Method 2 - Trade First- Example 4 -Without Grids



Method 2 - Trade First- Example 5 -Without Grids
 Method 2 - Trade First- Example 6 -Without Grids
 Method 3 - Add Up- Example 1 -With Grids
 Method 3 - Add Up- Example 2 -With Grids
 Method 3 - Add Up- Example 3 -With Grids
 Method 3 - Add Up- Example 4 -With Grids
 Method 3 - Add Up- Example 5 -Without Grids
 Method 3 - Add Up- Example 6 -Without Grids
 Method 3 - Add Up- Example 7 -Without Grids
 Method 3 - Add Up- Example 8 -Without Grids
 Method 4 - Add Up to Zero- Example 1
 Method 4 - Add Up to Zero- Example 2

Understanding Fractions 2008

Section 15: Multiplication and Division of Decimals

Notes

Recall Basic Facts

Multiply by Repeated Addition

Example 1

Example 2

Special Case: Multiply a Decimal by a Whole Number

Example 1 with Blocks

Multiply by Partial Products - Area

Example 2 with Blocks

Example 1 with Blocks

Example 2 with Blocks

Example 3 with Blocks

Example 4 without Blocks

Example 5 without Blocks

Example 6 without Blocks

Question 1

Question 2

Question 3

Distributive Method

Example 1

Example 2

Example 3

Question 1

Question 2

Question 3

Standard Method

Example 1

Example 2

Example 3

Question 1

Question 2

Question 3



Preliminaries to Division	Graphic Example Multiplication Table Summary for Decimals
Partial Quotients	Example 1 Example 2 Example 3 Example 4
Fair Sharing - Long Division	Example 1 Example 2 Question 1 Question 2 Question 3 Question 4

3. Simplify arithmetic expressions containing integers using the field properties and order of operations.

Understanding Whole Numbers and Integers 2008		Notes
Section 5: Adding Integers		
Word Problems	Temperature Money Car	
Understanding Whole Numbers and Integers 2008		Notes
Section 6: Subtracting Integers		
Word Problems	The Sailboat The Bank	
Understanding Whole Numbers and Integers 2008		Notes
Section 7: Multiplying Integers		
Word Problems	Washing Cars The Helicopter Construction	
Understanding Whole Numbers and Integers 2008		Notes
Section 8: Dividing Integers		
Word Problems	Casino Plant Graham's Walk	
Understanding Whole Numbers and Integers 2008		Notes
Section 9: Order of Operations		
Word Problems	Shipping Babysitting Garbage	



4. Describe and use the inverse relationships of squaring and finding square roots to simplify computations and solve problems.		
Understanding Exponents 2008		Notes
Section 5 : Square Root		
Example Questions	3. Lawn Questions 4. Make a Square	
5. Justify divisibility rules for 3, 4, 6, 8, and 9.		
Understanding Whole Numbers and Integers 2008		Notes
Section 3: Multiplying and Dividing Whole Numbers		
Multiplication Facts	Groups of 6 Groups of 8 Groups of 9	
Understanding Fractions 2008		Notes
Section 2: Products, Multiples, Factors		
Multiples	Example 1 Example 2	
Divisibility	Example 4 Example 5 Example 6 Example 7	
Stage I		
1. Compare and contrast the properties of numbers and number systems, including the rational and the real numbers.		
Not yet correlated		
2. Determine an appropriate numerical representation of a problem situation, including roots and powers, if applicable.		
Understanding Whole Numbers and Integers 2008		Notes
Section 5: Adding Integers		
Word Problems	Temperature Money Car	
Understanding Whole Numbers and Integers 2008		Notes
Section 6: Subtracting Integers		
Word Problems	The Sailboat The Bank	



Understanding Whole Numbers and Integers 2008	Notes
Section 7: Multiplying Integers	
Word Problems	Washing Cars The Helicopter Construction
Understanding Whole Numbers and Integers 2008	Notes
Section 8: Dividing Integers	
Word Problems	Casino Plant Graham's Walk
Understanding Whole Numbers and Integers 2008	Notes
Section 9: Order of Operations	
Word Problems	Shipping Babysitting Garbage
Understanding Exponents 2008	Notes
Section 5 : Square Root	
Example Questions	1. Radicals First 3. Lawn Questions 4. Make a Square
3. Judge the effects of such operations as multiplication, division, and computing powers and roots on the magnitudes of quantities.	
Not yet correlated	
4. Solve problems using simple matrix operations (addition, subtraction, scalar multiplication).	
Not yet correlated	
5. Develop fluency in operations with real numbers using mental computation or paper-and-pencil calculations for simple cases and technology for more-complicated cases.	
Not yet correlated	
6. Judge the reasonableness of numerical computations and their results.	
Not yet correlated	



6C *Students who meet the standard can compute and estimate using mental mathematics, paper-and-pencil methods, calculators, and computers. (Choice of method)*

Stage G

1. Select, use, and justify appropriate operations, methods, and tools to compute or estimate with integers and familiar rational numbers.

Not yet correlated

2. Develop, use, and explain strategies to compute exact answers mentally with integers and simple rational numbers using a variety of techniques (e.g., estimate and compensate, halve and double, compatible numbers, decomposition and recomposition using the distributive property).

Not yet correlated

3. Analyze algorithms for computing with rational numbers and develop fluency in their use.

Not yet correlated

Stage H

1. Select, use, and justify appropriate operations, methods, and tools to compute or estimate with real numbers.

Not yet correlated

2. Analyze algorithms for computing with real numbers and develop fluency in their use.

Not yet correlated

Stage I

1. Develop fluency in operations with real numbers and matrices using mental computation or paper-and-pencil calculations for simple cases and technology for more-complicated cases.

Not yet correlated

2. Determine and explain whether exact values or approximations are needed in a variety of situations.

Not yet correlated

3. Determine an appropriate number of digits to represent an outcome.

Not yet correlated



6D Students who meet the standard can solve problems using comparison of quantities, ratios, proportions, and percents.

Stage G

1. Work flexibly with fractions, decimals, and percents to solve number sentences and word problems (e.g., 50% of 10 is the same as $\frac{1}{2}$ of 10 is the same as 0.5×10).

Understanding Fractions 2008

Notes

Section 6: Percents... Fractions... Decimals

Expressing a Percent as a Fraction

Introduction Without Graphics
 Introduction With Graphics
 Expressing a Fraction In Simplest Form- Greatest Common Factor
 Expressing a Fraction In Simplest Form
 Expressing a Fraction In Simplest Form- Simplifying Fractions
 Expressing a Fraction In Simplest Form
 Examples- Example 1
 Examples- Example 2
 Examples- Example 3
 Examples- Example 4
 The Watering Can

Expressing a Percent as a Decimal

Introduction
 Example 1
 Example 2
 Example 3

Number Line #1

Decimal Strips

Concept 1
 Concept 2
 Concept 3

Expressing Decimals as a Percent

Example 1
 Example 2
 Example 3
 Summary Pattern

Expressing Fractions as a Percent

% Nitrogen in Air
 Batting Averages
 An Example
 Method 1- Example 1
 Method 1- Example 2
 Method 2- Example 1
 Method 2- Example 2
 Lightning Example

Number Line #2

Chart

Order Fractions, Decimals, Percent

5 questions (randomly generated)

Practice Questions

11 questions (randomly generated)



2. Create and explain ratios and proportions that represent quantitative relationships.

Understanding Fractions 2008

Notes

Section 7: Ratios and Proportions

Ratios in the News

What is a Ratio?

Example 1 - Fraction Strip

Example 2 - Balls

Example 3 - Students

Example 4 - Gears

Writing Ratios

Concept

Example 1

Example 2

Example 3

Example 4

Example 5

Example 6

What is a Proportion?

Proportions with Pattern Blocks

Example 1

Example 2

Example 3

Proportions

Example 1

Example 2 - Lemonade

Example 3 - Marbles

Example 4 - Trout

Example 5 - Tree Height

Example 6 - Map

Example 7 - Scale Drawing

3. Create and explain a variety of equivalent ratios to represent a given situation.

Understanding Fractions 2008

Notes

Section 7: Ratios and Proportions

Writing Ratios

Concept

Example 1

Example 2

Example 3

Example 4

Rate and Unit Rate

Concept

Examples

The Best?- Example 1

The Best?- Example 2

The Best?- Example 3



Ratio Table	Introduction Example 1 Example 2 Example 3	
4. Develop, use, analyze, and explain methods for solving numeric or word problems involving proportions.		
Understanding Fractions 2008 Section 7: Ratios and Proportions		Notes
Proportions	Example 1 Example 2 - Lemonade Example 3 - Marbles Example 4 - Trout Example 5 - Tree Height Example 6 - Map Example 7 - Scale Drawing	
Stage H		
1. Develop, use, analyze, and explain methods for solving number sentences or word problems involving proportions with rational numbers.		
Understanding Fractions 2008 Section 7: Ratios and Proportions		Notes
Proportions	Example 1 Example 2 - Lemonade Example 3 - Marbles Example 4 - Trout Example 5 - Tree Height Example 6 - Map Example 7 - Scale Drawing	
2. Solve problems that involve percents, including percent increase and decrease, regardless of the piece of information that is missing.		
Understanding Percent 2008 Section 6: Problems Involving Percent		Notes
In This Topic Steps in Solving Problems Finding The Whole	Recall Proportionals School Population: Method 1... Using Proportions School Population: Method 2	



Finding The Percent	Grades Problem: Method 1... Using Proportions Grades Problem: Method 2 Bike Sale: Method 1... Using Proportions Bike Sale: Method 2 Theatre Example Car Example
Percent of a Number	Earnings Example Nickel Ore Example
Percent Change	Interest Example Tree Example
Practice Questions	Percent Markup Example 10 questions (randomly generated)

Stage I

1. Explain how ratios and proportions can be used to solve problems of percent, growth, and error tolerance.

Understanding Probability 2008

Notes

Section 2: What's the Chance

Experimental Probability

Example 1

Example 2

2. Set up and solve proportions for direct and inverse variation of simple quantities.

Not yet correlated



Goal 7

7A Students who meet the standard can measure and compare quantities using appropriate units, instruments, and methods. (Performance and conversion of measurements)

Stage G

1. Select and justify the choice of either U.S. customary or metric systems of measurement according to the situation (e.g., measure fabric in yards, measure dry chemicals in grams).

Understanding Measurement and Geometry 2008

Notes

Section 1: An Introduction to Measurement

Benchmarks - Metric

Introduction

Examples- 4 questions (randomly generated)

Benchmarks - US Standard

Introduction

Practice- 4 questions (randomly generated)

2. Make simple measurements to determine indirect measures (e.g., determining the height of a flagpole using its shadow and similar right triangles).

Understanding Percent 2008

Notes

Section 4: Ratios and Proportions

Proportions

Example 1

Example 2 - Lemonade

Example 3 - Marbles

Example 4 - Trout

Example 5 - Tree Height

Example 6 - Map

Example 7 - Scale Drawing

Stage H

1. Solve simple scale conversions, contractions, and dilations (e.g., maps and diagrams).

Understanding Percent 2008

Notes

Section 4: Ratios and Proportions

Proportions

Example 5 - Tree Height

Example 6 - Map

Example 7 - Scale Drawing



Stage I

1. Select units and scales that are appropriate for problem situations involving measurement.

Understanding Measurement and Geometry 2008

Notes

Section 1: An Introduction to Measurement

Metric Conversions - Length

Introduction - Off Computer
Understanding Metric Prefixes
Metric Prefixes at Work
Metric Match - Introduction
Metric Match - Examples- 3 questions (randomly generated)
Converting

US Standard Conversions - Length

Introduction - Off Computer
Converting

Benchmarks - Metric

Introduction
Examples- 4 questions (randomly generated)

Benchmarks - US Standard

Introduction
Practice- 4 questions (randomly generated)

Understanding Percent 2008

Notes

Section 4: Ratios and Proportions

Proportions

Example 5 - Tree Height
Example 6 - Map
Example 7 - Scale Drawing

2. Convert between the U.S. customary and metric systems given the conversion factor.

Understanding Measurement and Geometry 2008

Notes

Section 1: An Introduction to Measurement

Rudy's Run Metric and US Standard



7C Students who meet the standard can select and use appropriate technology, instruments, and formulas to solve problems, interpret results, and communicate findings. (Progression from selection of appropriate tools and methods to application of measurements to solve problems)

Stage G

1. Select and use appropriate units and tools to measure volume, surface area, and mass/weight accurately for a given situation.

Understanding Measurement and Geometry 2008

Notes

Section 2: Perimeter and Area of Polygons

Introduction to Area

Units

Estimate- Example 1

Estimate- Example 2

Estimate- Example 3

Areas of Polygons

Area of a Rectangle- Concept

Area of a Rectangle- Example 1

Area of a Rectangle- Example 2

Area of a Rectangle- Example 3

Area of a Rectangle- Example 4

Area of a Parallelogram- Concept

Area of a Parallelogram- Example 1

Area of a Parallelogram- Example 2

Area of a Triangle- Concept 1

Area of a Triangle- Concept 2

Area of a Triangle- Example 1

Area of a Triangle- Example 2

Area of a Trapezoid- Introduction

Area of a Trapezoid- Method 1

Area of a Trapezoid- Method 2

Area of a Trapezoid- Method 3

Area of a Trapezoid- Method 4

Polygons Broken into Simpler Shapes- Example 1

Polygons Broken into Simpler Shapes- Example 2

Polygons Broken into Simpler Shapes- Example 3

Understanding Measurement and Geometry 2008

Notes

Section 4: Solids.. Volume and Surface Area

In This Topic

Classifying Solids

A Solid is...

Recall Polygons

A Polyhedron is...

A Prism is...

Some Special Prisms

A Pyramid is...



Surface Area of a Solid	Some Special Pyramids A Cylinder is... A Cone is... Platonic Solids Concept Surface Area of a Pyramid Surface Area of a Cylinder
Volume of a Solid	Concept Volume of a Prism: Example 1 Volume of a Prism: Example 2 Volume of a Cylinder Volume of a Pyramid Volume of a Cone

2. Select an appropriate formula to determine the circumference and the area of circles.

Understanding Measurement and Geometry 2008		Notes
Section 3: Circles		
In This Topic		
Circles All Around Us!		
Radius, Circumference, Diameter		
PI... A Special Number	Introduction	
	How do we Measure Circumference?	
	Measuring Circles	
	Summary	
Circumference of a Circle	Circumference of a Circle	
	Ex. 1 - Ogg	
	Ex. 2 - The Well	
	Ex. 3 - The Rolling Coin	
	Ex. 4 - The Semi-Circle	
AREA of a Circle	Recall Area	
	Area Exploration #1	
	Area Exploration #2	
	Ex. 1 - Wheel	
	Ex. 2 - Pizza	
	Ex. 3 - The Semi-Circle	
	Ex. 4 - The Dog's Run	
	Ex. 5 - The Hockey Rink	
	Ex. 6 - Circle and Square	
Practice Questions	5 questions (randomly generated)	



3. Select and explain an appropriate formula or strategy to find the surface area and volume of rectangular and triangular pyramids, cylinders and cones.

Understanding Measurement and Geometry 2008

Notes

Section 4: Solids.. Volume and Surface Area

Classifying Solids

A Pyramid is...
Some Special Pyramids

Surface Area of a Solid

A Cylinder is...
A Cone is...

Volume of a Solid

Surface Area of a Pyramid
Surface Area of a Cylinder
Volume of a Cylinder
Volume of a Pyramid
Volume of a Cone

4. Solve simple problems involving rate, time, and distance.

Understanding Graphing 2008

Notes

Section 1: Reading And Sketching Graphs

Graphs Without a Scale

Example 4... Nelia's Bike Ride

Graphs With a Scale

Concept... Distance and Time
Example 6... Ivan's Ride to the Party
Example 7... The Cyclists
Example 10... Rate
Example 11... Villeneuve
Example 14... Angelo's Walk

Understanding Percent 2008

Notes

Section 4: Ratios and Proportions

Rates and Unit Rate

Concept
Examples
The Best?- Example 1
The Best?- Example 2
The Best?- Example 3

5. Solve problems involving mixed units of the same attribute, including time, money, length, and area.

[Not yet correlated](#)

6. Explore and explain derived measurements (e.g., velocity and density).

[Not yet correlated](#)



7. Develop and discuss strategies to find the area of combined shapes.		
Understanding Measurement and Geometry 2008		Notes
Section 2: Perimeter and Area of Polygons		
Areas of Polygons		Polygons Broken into Simpler Shapes- Example 1 Polygons Broken into Simpler Shapes- Example 2 Polygons Broken into Simpler Shapes- Example 3
Stage H		
1. Solve simple problems involving rates and other derived measurements such as velocity and density.		
Understanding Fractions 2008		Notes
Section 7: Ratios and Proportions		
Rate and Unit Rate		Concept Examples The Best?- Example 1 The Best?- Example 2 The Best?- Example 3
2. Solve problems involving angle measurement in polygons and circles.		
Understanding Measurement and Geometry 2008		Notes
Section 6: Angles and Polygons		
Angles in Triangles		Exploration An Explanation Exterior Angles Example
Angles in Polygons		Method 1 Method 2 Exterior Angles in a Polygon
Practice Questions		5 questions (randomly generated)
3. Develop and describe surface area and volume formulas for cones and cylinders by relating pyramids to cones and prisms to cylinders.		
Understanding Measurement and Geometry 2008		Notes
Section 4: Solids.. Volume and Surface Area		
Classifying Solids		A Pyramid is... Some Special Pyramids A Cylinder is... A Cone is... Platonic Solids



Surface Area of a Solid	Concept Surface Area of a Pyramid Surface Area of a Cylinder
Volume of a Solid	Concept Volume of a Prism: Example 1 Volume of a Prism: Example 2 Volume of a Cylinder Volume of a Pyramid Volume of a Cone

4. Solve problems involving time, temperature, mass, speed, distance, density, and monetary values.

Understanding Graphing 2008

Notes

Section 1: Reading And Sketching Graphs

Graphs With a Scale

- Concept... Distance and Time
- Example 1... Wins in Soccer
- Example 2... Books and Days
- Example 3... The Travel Log
- Example 4... Winning in Baseball
- Example 5... Cost and Distance
- Example 6... Ivan's Ride to the Party
- Example 7... The Cyclists
- Example 8... Baseball (situations are randomly generated)
- Example 9... The Beach
- Example 10... Rate
- Example 11... Villeneuve
- Example 12... Volume and Time
- Example 13... The River Problem
- Example 14... Angelo's Walk

Understanding Equations 2008

Notes

Section 5: Problem Solving

- Area of Walls
- Chemistry
- Pool Puzzler - The First Problem
- Perimeter Problem with Diagram
- Fish Problem with Diagram
- Money Problem with Chart
- Age Problem with Chart
- Buying CDs
- Meat Mixture
- Coffee Mixture
- Rate of Work



5. Solve problems involving scale drawings, models, maps, or blueprints.		
Understanding Percent 2008 Section 4: Ratios and Proportions Proportions		Notes
	Example 5 - Tree Height Example 6 - Map Example 7 - Scale Drawing	
6. Determine derived measurements.		
Not yet correlated		
7. Determine the surface area of three-dimensional figures.		
Understanding Measurement and Geometry 2008 Section 4: Solids.. Volume and Surface Area Surface Area of a Solid		Notes
	Concept Surface Area of a Pyramid Surface Area of a Cylinder Surface Area of a Sphere	
8. Determine the volume of a sphere.		
Understanding Measurement and Geometry 2008 Section 4: Solids.. Volume and Surface Area Volume of a Solid		Notes
	Volume of a Sphere	
Stage I		
1. Solve problems using indirect measurement by choosing appropriate technology, instruments, and/or formulas.		
Not yet correlated		
2. Check measurement computations using unit analysis.		
Not yet correlated		



3. Describe the general trends of how the change in one measure affects other measures in the same figure (e.g., length, area, volume).	
Understanding Measurement and Geometry 2008 Notes Section 9: Ratios for Areas and Volumes	
In This Topic	
Ratios	Introduction Area Volume
Practice Questions	10 questions (randomly generated)
4. Determine linear measures, perimeters, areas, surface areas, and volumes of similar figures using the ratio of similitude.	
Not yet correlated	
5. Determine the ratio of similar figure perimeters, areas, and volumes using the ratio of similitude.	
Not yet correlated	
6. Calculate by an appropriate method the length, width, height, perimeter, area, volume, surface area, angle measures, or sums of angle measures of common geometric figures, or combinations of common geometric figures.	
Understanding Measurement and Geometry 2008 Notes Section 2: Perimeter and Area of Polygons	
Walk Around a Polygon	Joan Walks Perimeter of Various Shapes- Example - 1 Perimeter of Various Shapes- Example - 2 Perimeter of Various Shapes- Example - 3 Perimeter of The Ranch Length of the Metal Strip Find the Perimeter - 3 Examples
Introduction to Area	Units Estimate- Example 1 Estimate- Example 2 Estimate- Example 3
Areas of Polygons	Area of a Rectangle- Concept Area of a Rectangle- Example 1 Area of a Rectangle- Example 2 Area of a Rectangle- Example 3 Area of a Rectangle- Example 4 Area of a Parallelogram- Concept Area of a Parallelogram- Example 1 Area of a Parallelogram- Example 2 Area of a Triangle- Concept 1 Area of a Triangle- Concept 2 Area of a Triangle- Example 1 Area of a Triangle- Example 2



	<p>Area of a Trapezoid- Introduction Area of a Trapezoid- Method 1 Area of a Trapezoid- Method 2 Area of a Trapezoid- Method 3 Area of a Trapezoid- Method 4 Polygons Broken into Simpler Shapes- Example 1 Polygons Broken into Simpler Shapes- Example 2 Polygons Broken into Simpler Shapes- Example 3 Area of Wall The Tablecloth</p>	
Problem Section		
Understanding Measurement and Geometry 2008		Notes
Section 3: Circles		
In This Topic		
Circles All Around Us!		
Radius, Circumference, Diameter		
PI... A Special Number		
	<p>Introduction How do we Measure Circumference? Measuring Circles Summary Circumference of a Circle Ex. 1 - Ogg Ex. 2 - The Well Ex. 3 - The Rolling Coin Ex. 4 - The Semi-Circle</p>	
Circumference of a Circle		
	<p>Recall Area Area Exploration #1 Area Exploration #2 Ex. 1 - Wheel Ex. 2 - Pizza Ex. 3 - The Semi-Circle Ex. 4 - The Dog's Run Ex. 5 - The Hockey Rink Ex. 6 - Circle and Square</p>	
AREA of a Circle		
	<p>5 questions (randomly generated)</p>	
Practice Questions		
Understanding Measurement and Geometry 2008		Notes
Section 4: Solids.. Volume and Surface Area		
Surface Area of a Solid	<p>Concept Surface Area of a Pyramid Surface Area of a Cylinder Surface Area of a Sphere</p>	
Volume of a Solid	<p>Concept</p>	



	<p>Volume of a Prism: Example 1 Volume of a Prism: Example 2 Volume of a Cylinder Volume of a Pyramid Volume of a Cone Volume of a Sphere</p>	
Understanding Measurement and Geometry 2008		Notes
Section 5: Angles and Their Measure		
In This Topic		
Lines and Rays		
The Degree		
Classify Angles	<p>Classification Memory Game</p>	
Measuring Angles		
Estimating Angle Measure	10 questions (randomly generated)	
Practice Questions	5 questions (randomly generated)	
Understanding Measurement and Geometry 2008		Notes
Section 6: Angles and Polygons		
Angles in Triangles	<p>Exploration An Explanation Exterior Angles Example</p>	
Angles in Polygons	<p>Method 1 Method 2 Exterior Angles in a Polygon</p>	
Practice Questions	5 questions (randomly generated)	
7. Solve problems involving multiple rates, measures, and conversions.		
Understanding Percent 2008		Notes
Section 4: Ratios and Proportions		
Rates and Unit Rate	<p>Concept Examples The Best?- Example 1 The Best?- Example 2 The Best?- Example 3</p>	
Understanding Equations 2008		Notes
Section 5: Problem Solving		
Meat Mixture		
Coffee Mixture		
Rate of Work		



Goal 8

8A Students who meet the standard can describe numerical relationships using variables and patterns. (Representations and algebraic manipulations)

Stage G

1. Investigate, describe, and generalize a variety of patterns using variable or recursive techniques.

Understanding Algebra 2008

Notes

Section 3: Patterns, Patterns, Patterns

Number Patterns	Example 1
	Example 2
	Example 3
	Example 4
	Example 5
	Example 6
Number and Geometric Patterns	Example 1
	Example 2
Patterns to Formulas	Example 1
	Example 2
	Example 3
	Example 4
	Example 5

2. Represent situations using variables.

Understanding Equations 2008

Notes

Section 5: Problem Solving

The Translation Machine	Example 1
	Example 2
	Example 3
	Example 4

Understanding Algebra 2008

Notes

Section 1: Introduction to Algebraic Thinking

Function Machine	Introduction
	Find Output
	Find Input
	Find the Rule- Rule 1
	Find the Rule- Rule 2
	Find the Rule- Rule 3
	Find the Rule- Rule 4



Containers in Number Sentences - Addition	10 questions (randomly generated)
Variables in Number Sentences - Addition	10 questions (randomly generated)
Containers in Number Sentences - Subtraction	10 questions (randomly generated)
Variables in Number Sentences - Subtraction	10 questions (randomly generated)
Containers in Number Sentences - Multiplication	10 questions (randomly generated)
Variables in Number Sentences - Multiplication	10 questions (randomly generated)
Containers in Number Sentences-Add,Subt,Mult,Div	10 questions (randomly generated)
Summary	
Practice Questions	10 questions (randomly generated)

3. Recognize and generate equivalent forms of simple algebraic expressions.

Understanding Algebra 2008		Notes
Section 5: Adding Expressions		
Adding Expressions without Tiles	Example 1 Example 2	
Practice Questions Without Tiles	10 questions (randomly generated)	
Understanding Algebra 2008		Notes
Section 6: Subtracting Expressions		
Subtracting Expressions Without Tiles		
Practice Questions Without Tiles	10 questions (randomly generated)	
Understanding Algebra 2008		Notes
Section 7: Multiplying Expressions		
Multiplying Monomials	Powers- Concept Powers- Example 1 Powers- Example 2 Powers- Example 3 Powers- Example 4 Without Tiles	
Multiplying Monomials and Binomials	Without Tiles	
Multiplying Binomials	Without Tiles Pattern (FOIL)	
Examples... True or False	Example 1 Example 2 Example 3	
Examples	Example 1 Example 2 Example 3 Example 4 Example 5	



Squaring a Binomial	Examples- Example 1 without Tiles Examples- Example 2 without Tiles Examples- Example 3 without Tiles Examples- Example 4 without Tiles The Pattern An Example	
Practice Questions	10 questions (randomly generated)	
Understanding Algebra 2008		Notes
Section 9: Dividing Expressions		
Dividing a Monomial by a Monomial	Example 1 Example 2 Example 3 Example 4	
Dividing a Polynomial by a Monomial	Concept Example 1 Example 2 Example 3 Summary	

Stage H

1. Investigate and describe linear, quadratic, and exponential patterns recursively.

Understanding Algebra 2008		Notes
Section 3: Patterns, Patterns, Patterns		
Patterns to Formulas	Example 1 Example 2 Example 3 Example 4 Example 5	
Understanding Exponents 2008		Notes
Section 1: The Meaning of Exponents		
Introduction... The Money Game	Money Grab Game Show Graphs... Game Show Results Graphs... Compare The Two Results	
Introduction... Bacteria Doubling		
Introduction... Paper Folding	Experiment Pattern	



2. Investigate and write algebraic expressions to describe the nth term of a simple linear, power, or exponential sequence.

Understanding Algebra 2008

Notes

Section 3: Patterns, Patterns, Patterns

Number Patterns	Example 1
	Example 6
Patterns to Formulas	Example 1
	Example 2
	Example 3
	Example 4
	Example 5

Understanding Exponents 2008

Notes

Section 1: The Meaning of Exponents

Introduction... The Money Game	Money Grab Game Show
	Graphs... Game Show Results
	Graphs... Compare The Two Results
Introduction... Bacteria Doubling	
Introduction... Paper Folding	Experiment
	Pattern
Exponents, Powers, Bases	

3. Determine a specific term of a pattern of numbers or drawings.

Understanding Algebra 2008

Notes

Section 3: Patterns, Patterns, Patterns

Number and Geometric Patterns	Example 1
	Example 2

4. Create arithmetic and geometric sequences to fit a given set of conditions.

Understanding Algebra 2008

Notes

Section 4: Patterns, Formulas, Substitution

Patterns... Toothpicks	Introduction
	Exploration
	To Formula- Pattern 1
	To Formula- Pattern 2
	To Formula- Pattern 3
	To Formula- Pattern 4
	Summary
Patterns... The Bridge	Introduction
	Exploration
	To Formula- Pattern 1
	To Formula- Pattern 2
	To Formula- Pattern 3
	Summary



5. Recognize and generate equivalent forms for linear equations, including transforming linear equations into standard and slope-intercept form.

Understanding Graphing 2008

Notes

Section 8: Equation of a Straight Line

Slope, Y-intercept Equations

Concept

Example 1

Example 2

Example 3

Example 4

Stage I

1. Write equivalent forms of equations, inequalities, and systems of equations.

Understanding Equations 2008

Notes

Section 2: Solving One-Step Equations

Concept - Examples without Tiles

Example 1

Example 2

Example 3

Example 4

Example 5

Practice Questions

10 questions (randomly generated)

Understanding Equations 2008

Notes

Section 3: Solving Two-Step Equations

Concept - Examples without Tiles

Example 1

Example 2

Example 3

Example 4

Example 5

Example 6

Practice Questions

10 questions (randomly generated)

Understanding Equations 2008

Notes

Section 4: Solving Multi-Step Equations

Concept - Examples without Tiles

Example 1

Example 2

Example 3

Example 4

Example 5

Summary



Understanding Equations 2008		Notes
Section 6: Solving Linear Systems		
The Meaning of a Linear System		
The Meaning of Solving a Linear System		
Solving a Linear System by Substitution	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions	
Understanding Equations 2008		Notes
Section 7: Solving Inequalities		
Inequalities	What Are They? Inequalities vs. Equations Summary of Relationships	
Solving Inequalities	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6	
Solving Compound Inequalities	Example 1 Example 2	

2. Represent and explain mathematical relationships using symbolic algebra.

Understanding Algebra 2008		Notes
Section 2: Tiles & Algebra		
Pictures to Words to Algebraic Expressions	Example 1 Example 2	
Algebraic expressions to Tiles	Example 1 Example 2 Example 3	
Understanding Algebra 2008		Notes
Section 4: Patterns, Formulas, Substitution		
Introduction... Math is Patterns		
Expressions, Terms, Variables	Definitions Summary	
Patterns... Hockey Standings		
Patterns... Squares - Perimeter and Area		
Patterns... Toothpicks	Introduction Exploration To Formula- Pattern 1	



Patterns... Counting Money	To Formula- Pattern 2 To Formula- Pattern 3 To Formula- Pattern 4 Summary The Pattern... Method 1 The Pattern... Method 2 The Pattern... In General
Patterns... Angles in a Polygon	Summary Interior Angles The Pattern
Patterns... The Bridge	Summary Introduction Exploration To Formula- Pattern 1 To Formula- Pattern 2 To Formula- Pattern 3

3. Model and describe slope as a constant rate of change.

Understanding Graphing 2008		Notes
Section 7: Slope of a Line		
In This Topic		
Introductions to Slope	Slope When Driving A Ski Slope Slope of a Roof	
Slope	Order Steepness Factor	
Introductory Examples	Definition Example 1 Example 2 Example 3 Example 4	

4. Explain the difference between constant and non-constant rate of change.

Understanding Graphing 2008		Notes
Section 1: Reading And Sketching Graphs		
Graphs Without a Scale	Example 11... The Bathtub #1 Example 12... The Bathtub #2 Example 13... The Hot Tub	
Graphs With a Scale	Concept... Distance and Time Example 6... Ivan's Ride to the Party Example 7... The Cyclists	



Examples

Example 2
Example 3
Example 1
Example 2
Example 3
Example 4
Example 5

Squaring a Binomial

Examples- Example 1 without Tiles
Examples- Example 2 without Tiles
Examples- Example 3 without Tiles
Examples- Example 4 without Tiles
The Pattern

Practice Questions

An Example
10 questions (randomly generated)

Understanding Algebra 2008

Section 8: Factoring Expressions

Our Problem

Common Factoring

With Tiles- Example 1 - Method 1
With Tiles- Example 1 - Method 2
With Tiles- Example 1 - Method 1
With Tiles- Example 2 - Method 2
Without Tiles- Greatest Common Factor
Without Tiles- Example 1
Without Tiles- Example 2

Notes

Understanding Algebra 2008

Section 9: Dividing Expressions

Dividing a Monomial by a Monomial

Example 1
Example 2
Example 3
Example 4

Dividing a Polynomial by a Monomial

Concept
Example 1
Example 2
Example 3
Summary

Notes



7. Justify the results of symbol manipulations, including those carried out by technology.

Not yet correlated

8. Identify essential quantitative relationships in a situation and determine the class or classes of functions (e.g., linear, quadratic) that might model the relationships.

Understanding Graphing 2008

Notes

Section 5 : Relations, Equations and Functions

Relations	What is a Relation?
Patterns to Words to Equations	Example 1
	Example 2
	Example 3
	Example 4

Understanding Graphing 2008

Notes

Section 6: Linear Relations

What is a Linear Relation?	
Graphs of Linear Relations	Concept
	Examples- Example 1
	Examples- Example 2
	Examples- Example 3
	Examples- Example 4
	Examples- Example 5
	Examples- Example 6
The Taxi Example	Setup Equations
	Graph Equations
The Elastic Example	Setup Equations
	Graph
Lightning Example	Setup Equations
	Graph

9. Represent relationships arising from various contexts using algebraic expression.

Understanding Graphing 2008

Notes

Section 5 : Relations, Equations and Functions

Patterns to Words to Equations	Example 1
	Example 2
	Example 3
	Example 4



Understanding Algebra 2008

Notes

Section 4: Patterns, Formulas, Substitution

Patterns... Hockey Standings

Patterns... Squares - Perimeter and Area

Patterns... Toothpicks

Introduction

Exploration

To Formula- Pattern 1

To Formula- Pattern 2

To Formula- Pattern 3

To Formula- Pattern 4

Summary

Patterns... Counting Money

The Pattern... Method 1

The Pattern... Method 2

The Pattern... In General

Summary

Patterns... Angles in a Polygon

Interior Angles

The Pattern

Summary

Patterns... The Bridge

Introduction

Exploration

To Formula- Pattern 1

To Formula- Pattern 2

To Formula- Pattern 3

Summary

10. Rewrite absolute value inequalities in terms of two separate equivalent inequalities with the appropriate connecting phrase of `AND` or `OR`.

Understanding Equations 2008

Notes

Section 7: Solving Inequalities

Solving Compound Inequalities

Example 1

Example 2



8B Students who meet the standard can interpret and describe numerical relationships using tables, graphs, and symbols. (Connections of representations including the rate of change)

Stage G

1. Create a table of values that satisfy a power or exponential relationship and plot the points on the Cartesian plane.

Understanding Exponents 2008

Notes

Section 1: The Meaning of Exponents

Introduction... The Money Game	Money Grab Game Show
	Graphs... Game Show Results
	Graphs... Compare The Two Results
Introduction... Bacteria Doubling	
Introduction... Paper Folding	Experiment
	Pattern

2. Graph two inequalities with a single variable, including the intersection or union of these inequalities, on a number line.

Understanding Equations 2008

Notes

Section 7: Solving Inequalities

Inequalities on a Number Line	Example 1
	Example 2
	Example 3
	Example 4
Solving Compound Inequalities	Example 1
	Example 2

Stage H

1. Graph linear equations and inequalities on the Cartesian plane.

Understanding Graphing 2008

Notes

Section 6: Linear Relations

In This Topic	
What is a Linear Relation?	
Graphs of Linear Relations	Concept
	Examples- Example 1
	Examples- Example 2
	Examples- Example 3
	Examples- Example 4
	Examples- Example 5
	Examples- Example 6



Understanding Graphing 2008	Notes
Section 8: Equation of a Straight Line	
Graph $y = mx + b$	<ul style="list-style-type: none"> Example 1 Example 2 Example 3 Example 4 Patterns to Summary Example 5 Example 6 Example 7 Example 8
Understanding Equations 2008	Notes
Section 7: Solving Inequalities	
Graphing Linear Inequalities in Two Variables	<ul style="list-style-type: none"> Concept 1 Concept 2 Example 1 Example 2 Example 3

2. Graph a set of points and describe the relationship as linear or nonlinear.

Understanding Graphing 2008	Notes
Section 5 : Relations, Equations and Functions	
Patterns to Words to Equations	<ul style="list-style-type: none"> Example 1 Example 2 Example 3 Example 4

3. Describe the relationships between symbolic expressions and graphs of lines using the appropriate vocabulary for the intercepts and slope of the line.

Understanding Graphing 2008	Notes
Section 8: Equation of a Straight Line	
Slope, Y-intercept Equations	<ul style="list-style-type: none"> Concept Example 1 Example 2 Example 3 Example 4
Exercise: Slope, Y-intercept	<ul style="list-style-type: none"> Concept Example 1 Example 2 Example 3 Example 4



4. Graph absolute values on a number line.

Understanding Equations 2008

Notes

Section 8: Solving Absolute Value Equations

Absolute Value... What is it?	Concept Example 1 Example 2 Summary
Absolute Value Equations in 1 Variable	Example 1 Example 2
Absolute Value Inequalities in 1 Variable	Example 1 Example 2

5. Determine the slope of a line from a graph.

Understanding Graphing 2008

Notes

Section 7: Slope of a Line

Slope	Definition
Introductory Examples	Example 1 Example 2 Example 3 Example 4
Formula	
Positive and negative Slope	Example 1 Example 2 Example 3 Example 4 Pattern

Stage I

1. Describe the relationships of the independent and dependent variables from a graph.

Understanding Graphing 2008

Notes

Section 1: Reading And Sketching Graphs

In This Topic	
Graphs Without a Scale	Concept... Age and Weight Example 1... Height and Weight Example 2... Errors and Years Example 3... Pushups and Situps Example 4... Nelia's Bike Ride Example 5... Temperature and Time Example 6... Melissa Eating Popcorn (situations are randomly generated)



Graphs With a Scale	<p>Example 7... Glasses of Water</p> <p>Example 8... Bottles of Water</p> <p>Example 9... Bottles of Water... Matching</p> <p>Example 10... Age and Height</p> <p>Example 11... The Bathtub #1</p> <p>Example 12... The Bathtub #2</p> <p>Example 13... The Hot Tub</p> <p>Concept... Distance and Time</p> <p>Example 1... Wins in Soccer</p> <p>Example 2... Books and Days</p> <p>Example 3... The Travel Log</p> <p>Example 4... Winning in Baseball</p> <p>Example 5... Cost and Distance</p> <p>Example 6... Ivan's Ride to the Party</p> <p>Example 7... The Cyclists</p> <p>Example 8... Baseball (situations are randomly generated)</p> <p>Example 9... The Beach</p> <p>Example 10... Rate</p> <p>Example 11... Villeneuve</p> <p>Example 12... Volume and Time</p> <p>Example 13... The River Problem</p> <p>Example 14... Angelo's Walk</p>
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2. Interpret the role of the coefficients and constants on the graph of linear and quadratic functions given a set of equations.

Understanding Graphing 2008		Notes
Section 8: Equation of a Straight Line		
Slope, Y-intercept Equations	<p>Concept</p> <p>Example 1</p> <p>Example 2</p> <p>Example 3</p> <p>Example 4</p>	
Understanding Graphing 2008		Notes
Section 9: Quadratic Function		
The Role of a	<p>The Plan</p> <p>a = 1,2,3</p> <p>a = -1,-2,-3</p> <p>Parabolas with the Same Width</p> <p>Summary</p>	
The Role of c	<p>The Plan</p> <p>Increase c</p> <p>Summary</p>	



3. Relate the effect of translations on linear graphs and equations.		
Understanding Graphing 2008		Notes
Section 8: Equation of a Straight Line		
Parallel and Perpendicular Lines	Concept 1 Example 1 Example 3	
4. Create and connect representations that are tabular, graphical, numeric, and algebraic from a set of data.		
Understanding Graphing 2008		Notes
Section 6: Linear Relations		
The Taxi Example	Setup Equations Graph Equations	
The Elastic Example	Setup Equations Graph	
Lightning Example	Setup Equations Graph	
5. Recognize and describe the general shape and properties of the graphs of linear, absolute value, and quadratic functions.		
Understanding Graphing 2008		Notes
Section 6: Linear Relations		
Graphs of Linear Relations	Concept Examples- Example 1 Examples- Example 2 Examples- Example 3 Examples- Example 4 Examples- Example 5 Examples- Example 6	
Understanding Graphing 2008		Notes
Section 9: Quadratic Function		
Introductory Examples	Example 1 Example 2 Summary- Example 1 Summary- Example 2	
Definitions	Parabolas Quadratic Functions	
Understanding Equations 2008		Notes
Section 8: Solving Absolute Value Equations		
Absolute Value Equations in 2 Variable	Example 1 Example 2	



6. Approximate and interpret rates of change from graphical and numerical data.

Understanding Graphing 2008

Notes

Section 1: Reading And Sketching Graphs

Graphs With a Scale

Concept... Distance and Time
 Example 5... Cost and Distance
 Example 6... Ivan's Ride to the Party
 Example 7... The Cyclists
 Example 9... The Beach
 Example 10... Rate
 Example 11... Villeneuve
 Example 12... Volume and Time
 Example 13... The River Problem
 Example 14... Angelo's Walk

Understanding Graphing 2008

Notes

Section 6: Linear Relations

The Taxi Example

Setup Equations
 Graph Equations

The Elastic Example

Setup Equations
 Graph

Lightning Example

Setup Equations
 Graph

7. Identify slope in an equation and from a table of values.

Understanding Graphing 2008

Notes

Section 6: Linear Relations

The Taxi Example

Setup Equations
 Graph Equations

The Elastic Example

Setup Equations
 Graph

Lightning Example

Setup Equations
 Graph

Understanding Graphing 2008

Notes

Section 8: Equation of a Straight Line

Slope, Y-intercept Equations

Concept
 Example 1
 Example 2
 Example 3
 Example 4

Exercise: Slope, Y-intercept

Concept



8. Graph absolute values of linear functions on the Cartesian plane.		
Understanding Equations 2008		Notes
Section 8: Solving Absolute Value Equations		
Absolute Value Equations in 2 Variable	Example 1	
	Example 2	
9. Recognize direct variation, inverse variation, linear, and exponential curves from their graphs, a table of values, or equations.		
Understanding Graphing 2008		Notes
Section 5 : Relations, Equations and Functions		
Relations	Example 4 Running- Display the Relation	
	Example 4 Running- Describe the Relation	
	Example 4 Running- Predict New Information	
Function Notation	Example 1	
Patterns to Words to Equations	Example 1	
	Example 2	
	Example 3	
	Example 4	
Understanding Graphing 2008		Notes
Section 6: Linear Relations		
What is a Linear Relation?	Concept	
Graphs of Linear Relations	Examples- Example 1	
	Examples- Example 2	
	Examples- Example 3	
	Examples- Example 4	
	Examples- Example 5	
	Examples- Example 6	
The Taxi Example	Setup Equations	
	Graph Equations	
The Elastic Example	Setup Equations	
	Graph	
Lightning Example	Setup Equations	
	Graph	
Understanding Exponents 2008		Notes
Section 1: The Meaning of Exponents		
Introduction... The Money Game	Money Grab Game Show	
	Graphs... Game Show Results	
	Graphs... Compare The Two Results	
Introduction... Bacteria Doubling		
Introduction... Paper Folding	Experiment	
	Pattern	



10. Interpret and use functions as a geometric representation of linear and non-linear relationships.

Understanding Graphing 2008

Notes

Section 5 : Relations, Equations and Functions

Functions	What is a Function? Example 1 Example 2 Example 3
Function Notation	Example 1 Example 2
Patterns to Words to Equations	Example 1 Example 2 Example 3 Example 4

8C *Students who meet the standard can solve problems using systems of numbers and their properties. (Problem solving; number systems, systems of equations, inequalities, algebraic functions)*

Stage G

1. Solve arithmetic and linear equations using the properties of equality and inequality.

Understanding Equations 2008

Notes

Section 6: Solving Linear Systems

About This Topic	
The Meaning of a Linear System	
The Meaning of Solving a Linear System	
Solving a Linear System by Substitution	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines

Understanding Equations 2008

Notes

Section 7: Solving Inequalities

Solving Inequalities	Example 1 Example 2 Example 3 Example 4 Example 5 Example 6
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2. Identify and provide examples or counter examples as appropriate for the reflexive, symmetric and transitive properties of inequality.

Not yet correlated

Stage H

1. Solve arithmetic and simple algebraic equations using properties of real numbers, equality and inequality, and justify the procedures.

Understanding Equations 2008

Notes

Section 2: Solving One-Step Equations

Our Problem

Concept - Examples with Tiles

Example 1

Example 2

Example 3

Example 4

Example 5

Concept - Examples without Tiles

Example 1

Example 2

Example 3

Example 4

Example 5

Practice Questions

10 questions (randomly generated)

Understanding Equations 2008

Notes

Section 3: Solving Two-Step Equations

Our Problem

Concept - Examples with Tiles

Example 1

Example 2

Example 3

Example 4

Concept - Examples without Tiles

Example 1

Example 2

Example 3

Example 4

Example 5

Example 6

Practice Questions

10 questions (randomly generated)

Understanding Equations 2008

Notes

Section 4: Solving Multi-Step Equations

Our Problem

Concept - Examples with Tiles



<p>Concept - Examples without Tiles</p> <p>Example 1 Example 2 Example 3 Example 4 Example 5</p> <p>Summary</p> <p>Understanding Equations 2008 Section 7: Solving Inequalities Solving Inequalities</p> <p>Example 1 Example 2 Example 3 Example 4 Example 5 Example 6</p>	Notes
<p>2. Solve simple algebraic equations for a given variable using inverse operations.</p>	
<p>Understanding Equations 2008 Section 2: Solving One-Step Equations Our Problem</p> <p>Concept - Examples with Tiles</p> <p>Example 1 Example 2 Example 3 Example 4 Example 5</p> <p>Concept - Examples without Tiles</p> <p>Example 1 Example 2 Example 3 Example 4 Example 5</p> <p>Practice Questions</p> <p>10 questions (randomly generated)</p>	Notes
<p>Understanding Equations 2008 Section 3: Solving Two-Step Equations Our Problem</p> <p>Concept - Examples with Tiles</p> <p>Example 1 Example 2 Example 3 Example 4</p> <p>Concept - Examples without Tiles</p> <p>Example 1 Example 2 Example 3</p>	Notes



Practice Questions	Example 4 Example 5 Example 6 10 questions (randomly generated)
Stage I	
1. Describe and compare the properties of linear and quadratic functions.	
Understanding Graphing 2008 Section 6: Linear Relations Graphs of Linear Relations Understanding Graphing 2008 Section 9: Quadratic Function Introductory Examples Definitions	Concept Examples- Example 1 Examples- Example 2 Examples- Example 3 Examples- Example 4 Examples- Example 5 Examples- Example 6 Example 1 Example 2 Summary- Example 1 Summary- Example 2 Parabolas Quadratic Functions
2. Solve problems by recognizing how an equation changes when parameters change.	
Not yet correlated	
3. Interpolate and extrapolate to solve problems using systems of numbers.	
Not yet correlated	
4. Solve problems using translations and dilations on basic functions.	
Not yet correlated	



8D Students who meet the standard can use algebraic concepts and procedures to represent and solve problems. (Connection of 8A, 8B, and 8C to solve problems)

Stage G

1. Solve simple linear equations, including direct variation, with integral coefficients using algebraic or graphical representations.

Understanding Graphing 2008

Notes

Section 6: Linear Relations

The Taxi Example	Setup Equations Graph Equations
The Elastic Example	Setup Equations Graph
Lightning Example	Setup Equations Graph

2. Solve simple problems involving quadratic relationships using technology for graphing.

Understanding Graphing 2008

Notes

Section 9: Quadratic Function

Maximize Cage Area	Graph
Maximize Potato Income	By Quadratic Function: Graph

Stage H

1. Solve algebraic equations or word problems that involve linear equations or inequalities using algebraic or graphical representations.

Understanding Graphing 2008

Notes

Section 6: Linear Relations

The Taxi Example	Setup Equations Graph Equations
The Elastic Example	Setup Equations Graph
Lightning Example	Setup Equations Graph

Understanding Graphing 2008

Notes

Section 8: Equation of a Straight Line

Word Problems-Applications	The Taxi - Case 1- Task 1: Find the Equation The Taxi - Case 1- Task 2: Graph the Equation
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	<p>The Taxi - Case 1- Task 3: Interpret the Equation The Taxi - Case 2- Task 1: Find the Equation The Taxi - Case 2- Task 2: Graph the Equation The Taxi - Case 2- Task 3: Interpret the Equation The Taxi - Summary The Walker</p>	
Understanding Equations 2008		Notes
Section 7: Solving Inequalities		
Graphing Linear Inequalities in Two Variables	<p>Concept 1 Concept 2 Example 1 Example 2 Example 3</p>	
Solving Systems of Linear Inequalities by Graphing	<p>Example 1 Example 2</p>	
2. Solve absolute value equations or inequalities in one variable using algebraic or graphical representations.		
Understanding Equations 2008		Notes
Section 8: Solving Absolute Value Equations		
Absolute Value Equations in 1 Variable	<p>Example 1 Example 2</p>	
Absolute Value Inequalities in 1 Variable	<p>Example 1 Example 2</p>	
3. Create word problems that meet given conditions and represent linear relationships.		
Not yet correlated		
Stage I		
1. Solve equivalent forms of equations, inequalities, and systems of equations with fluency—mentally or with paper-and-pencil in simple cases and using technology in all cases.		
Understanding Equations 2008		Notes
Section 6: Solving Linear Systems		
About This Topic		
The Meaning of a Linear System		
The Meaning of Solving a Linear System		



Solving a Linear System by Graphing	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines	
Solving a Linear System by Substitution	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines	
Solving a Linear System by Elimination	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines	
Solving a Linear System by Comparison	Example 1: Intersecting Lines Example 2: Intersecting Lines Example 3: Intersecting Lines Involving Fractions Example 4: Intersecting Lines Involving Fractions Example 5: Parallel Lines Example 6: Coincidental Lines	
Solving Problems Using Linear Systems	Example 1- Beginning of Question Example 1- Draw Graph Example 2- Beginning of Question Example 2- Draw Graph	
Practice Questions	10 questions (randomly generated)	
Understanding Equations 2008		Notes
Section 7: Solving Inequalities		
Solving Systems of Linear Inequalities by Graphing	Example 1 Example 2	
2. Create word problems that meet given conditions and represent simple power or exponential relationships, or direct or inverse variation situations.		
Not yet correlated		



3. Solve simple quadratic equations using algebraic or graphical representations.

Understanding Graphing 2008

Section 9: Quadratic Function

Notes

Maximize Cage Area

By Trial and Error
Use Quadratic Function
Graph
Conclusions
Summary

Maximize Potato Income

By Trial and Error
By Quadratic Function
By Quadratic Function: Graph
By Quadratic Function: Summary

4. Solve problems of direct variation situations using a variety of methods.

Understanding Graphing 2008

Section 6: Linear Relations

Notes

The Taxi Example

Setup Equations
Graph Equations

The Elastic Example

Setup Equations
Graph

Lightning Example

Setup Equations
Graph

Baseball Example

Setup Equations
Graph



Goal 9

9A Students who meet the standard can demonstrate and apply geometric concepts involving points, lines, planes, and space. (Properties of single figures, coordinate geometry and constructions)

Stage G

1. Examine and describe a geometric shape, such as a regular polygon or a quadrilateral with pairs of parallel or perpendicular sides, using coordinate geometry.

Understanding Graphing 2008

Notes

Section 3: Points on a Grid

Ordered pairs

Axis

Quadrants and Cartesian Plane

Finding a Point

Order is Important

Examples- Example 1

Examples- Example 2

Examples- Example 3

Shapes

Randomly Generated

2. Draw geometric shapes with specified properties, such as side lengths or angle measures.

Understanding Measurement and Geometry 2008

Notes

Section 2: Perimeter and Area of Polygons

In This Topic

Polygons... What are They?

Concept

A Triangle is

A Quadrilateral is

Classify Polygons

Classify Polygons with Venn Diagrams

3. Examine and describe line or rotational symmetry of objects in terms of transformations.

Understanding Graphing 2008

Notes

Section 4: Transformations

Rotation - An Introduction

Turn #1

Turn #2

Turn #3

Turn #4

Turn #5

Lines of Symmetry

An Introduction

Example 1

Example 2

Example 3



Symmetry Match	<p>Example 4 Puzzle -1 (randomly generated) Puzzle -2 (randomly generated)</p>	
4. Draw transformations of figures in a plane to match specified criteria.		
Understanding Graphing 2008		Notes
Section 4: Transformations		
Transformation Machine	<p>Example 1 Example 2 Example 3 Example 4 Example 5</p>	
Tessellations	<p>Introductions Examples- Example 1 Examples- Example 2 Examples- Example 3 Examples- Example 4 Examples- Example 5 Examples- Example 6</p>	
Tangrams	<p>Tangram Introduction Tangram Construction Example 1 Example 2 Example 3 Example 4 Example 5 Example 6</p>	
5. Perform constructions of congruent angles or parallel lines using a compass and straightedge, paper folding, or a mira.		
Understanding Measurement and Geometry 2008		Notes
Section 7: Constructions		
Draw a Line Parallel to Another Line Lesson		
6. Determine the relationship among the number of edges, faces, and vertices in a three-dimensional object.		
Understanding Measurement and Geometry 2008		Notes
Section 4: Solids.. Volume and Surface Area		
In This Topic		
Classifying Solids	<p>A Solid is... Recall Polygons A Polyhedron is...</p>	



A Prism is...
 Some Special Prisms
 A Pyramid is...
 Some Special Pyramids
 A Cylinder is...
 A Cone is...
 Platonic Solids

Stage H

1. Represent and analyze the properties of geometric shapes using coordinate geometry.

Understanding Graphing 2008

Notes

Section 3: Points on a Grid

Ordered pairs

Axis
 Quadrants and Cartesian Plane
 Finding a Point
 Order is Important
 Examples- Example 1
 Examples- Example 2
 Examples- Example 3
 Randomly Generated
 Randomly Generated

Shapes
 Battleship

2. Draw the image of an object after a combination of transformations.

Understanding Graphing 2008

Notes

Section 4: Transformations

Transformation Machine

Example 1
 Example 2
 Example 3
 Example 4
 Example 5
 Introductions
 Examples- Example 1
 Examples- Example 2
 Examples- Example 3
 Examples- Example 4
 Examples- Example 5
 Examples- Example 6
 Tangram Introduction
 Tangram Construction

Tessellations

Tangrams



Translations

Example 1
Example 2
Example 3
Example 4
Example 5
Example 6
Object to Image
We Say, We Write
Translation Mapping Rule
Examples- Example 1
Examples- Example 2
Examples- Example 3

3. Identify possible types of two- or three-dimensional figures that would match a set of given conditions.

Understanding Measurement and Geometry 2008

Notes

Section 2: Perimeter and Area of Polygons

Polygons... What are They?

Concept
A Triangle is
A Quadrilateral is
A Pentagon is
A Hexagon is
An Octagon is
Classify Polygons

Classify Polygons with Venn Diagrams

Understanding Measurement and Geometry 2008

Notes

Section 4: Solids.. Volume and Surface Area

Classifying Solids

A Solid is...
Recall Polygons
A Polyhedron is...
A Prism is...
Some Special Prisms
A Pyramid is...
Some Special Pyramids
A Cylinder is...
A Cone is...
Platonic Solids

4. Determine if a triangle is possible using side lengths and the triangle inequality.

Not yet correlated



5. Solve pictorial or word problems that involve geometric relationships within a single geometric shape or figure, including the Pythagorean theorem.

Understanding Exponents 2008

Notes

Section 6: Pythagorean Theorem

In This Topic

The Right Triangle

Math or Magic?

Introduction

Omar's Rope Trick #1

Omar's Rope Trick #2

Our Rope Trick

Squares on a Grid

Example 1

Example 2

Example 3

Example 4

Squares on the Sides of a Right Triangle

Triangle #1

Triangle #2

Triangle #3

The Pythagorean Theorem

The Pattern

In General

Theorem

Example Questions

Example 1... Pole Example

Example 2... Tower Example

Example 3... Walking Example

Example 4... Lake Example

Example 5... Geometric Example

Practice Questions

5 questions (randomly generated)

6. Analyze the results of a combination of reflections, rotations, and translations of a figure, and determine alternate motions that could produce the same results.

Understanding Graphing 2008

Notes

Section 4: Transformations

Transformation Machine

Example 1

Example 2

Example 3

Example 4

Example 5

7. Combine simple construction techniques to construct squares, equilateral triangles, or other simple combinations of equal segments, angles, etc.

[Not yet correlated](#)



8. Analyze properties of a shape that enable it to tessellate the plane.

Understanding Graphing 2008

Section 4: Transformations

Tessellations

Introductions
Examples- Example 1
Examples- Example 2
Examples- Example 3
Examples- Example 4
Examples- Example 5
Examples- Example 6

Notes

Stage I

1. Describe and apply properties of a polygon or a circle in a problem-solving situation.

Understanding Measurement and Geometry 2008

Section 2: Perimeter and Area of Polygons

Given Area and Perimeter - Create Shape

Example 1
Example 2
Example 3
Example 4
Length of Fence
Area of Wall
The Tablecloth

Problem Section

Notes

Understanding Measurement and Geometry 2008

Section 3: Circles

Circumference of a Circle

Ex. 1 - Ogg
Ex. 2 - The Well
Ex. 3 - The Rolling Coin
Ex. 4 - The Semi-Circle
Ex. 1 - Wheel
Ex. 2 - Pizza
Ex. 3 - The Semi-Circle
Ex. 4 - The Dog's Run
Ex. 5 - The Hockey Rink
Ex. 6 - Circle and Square

AREA of a Circle

Notes



2. Classify angle relationships for two or more parallel lines crossed by a transversal.		
Understanding Measurement and Geometry 2008 Section 6: Angles and Polygons Parallel Lines Examples with Parallel Lines Example 1 Example 2		Notes
3. Analyze geometric situations using Cartesian coordinates.		
Understanding Graphing 2008 Section 3: Points on a Grid Ordered pairs Axis Quadrants and Cartesian Plane Finding a Point Order is Important Examples- Example 1 Examples- Example 2 Examples- Example 3 Randomly Generated Shapes		Notes
4. Represent transformations of an object in the plane using sketches, coordinates, and vectors.		
Understanding Graphing 2008 Section 4: Transformations Translations Object to Image We Say, We Write Translation Mapping Rule Examples- Example 1 Examples- Example 2 Examples- Example 3 Reflections Object to Image We Say, We Write Reflection Mapping Rule Examples- Example 1 Examples- Example 2 Rotations Object to Image We Say, We Write Rotation Mapping Rule Examples- Example 2		Notes



5. Design a net that will create a given figure when folded.		
Understanding Measurement and Geometry 2008		Notes
Section 4: Solids.. Volume and Surface Area		
Surface Area of a Solid	Concept	
	Surface Area of a Pyramid	
	Surface Area of a Cylinder	
6. Solve problems using constructions.		
Understanding Graphing 2008		Notes
Section 4: Transformations		
Tangrams	Tangram Introduction	
	Tangram Construction	
	Example 1	
	Example 2	
	Example 3	
	Example 4	
	Example 5	
	Example 6	
7. Gain insights into, and answer questions in, other areas of mathematics using geometric models.		
Not yet correlated		
8. Calculate distance, midpoint coordinates, and slope using coordinate geometry.		
Understanding Graphing 2008		Notes
Section 7: Slope of a Line		
Introductory Examples	Example 2	
	Example 3	
	Example 4	
Formula		
Positive and negative Slope	Example 1	
	Example 2	
	Example 3	
	Example 4	
	Pattern	
9. Visualize a three-dimensional object from different perspectives and describe their cross sections.		
Understanding Measurement and Geometry 2008		Notes
Section 8: Projective Geometry		
An Introduction		
Toothpicks on Isometric Dot Paper	Toothpick to Cube	
	The Views	



	Using Isometric Grid Paper- Solid 1
	Using Isometric Grid Paper- Solid 2
	Using Isometric Grid Paper- Solid 3
	Using Isometric Grid Paper- Solid 4
	Using Isometric Grid Paper- Solid 5
Orthographic Projections: Introduction	
The Cube Tool	Introduction
	Tutorial- Deleting
	Tutorial- Views
	Tutorial- Up and Down
	Tutorial- Rotation
	Play with the Tool
Given Solid - Build it	Example 1
	Example 2
	Example 3
	Example 4
	Example 5
	Example 6
Given Views - Build it	Example 1
	Example 2
	Example 3
	Example 4
	Example 5
	Example 6
Given Volume - Build it	Example 1
	Example 2
	Example 3
	Example 4
	Example 5
	Example 6
Given Area - Build it	Example 1
	Example 2
	Example 3
	Example 4
	Example 5
	Example 6
Practice Questions	5 questions (randomly generated)



10. Identify and apply properties of medians, altitudes, angle bisectors, perpendicular bisectors, and midlines of a triangle.

Understanding Measurement and Geometry 2008

Notes

Section 7: Constructions

Perpendicular Bisector	Construction Steps Summary
Bisector of an Angle	Construction Steps Summary

9B *Students who meet the standard can identify, describe, classify and compare relationships using points, lines, planes, and solids. (Connections between and among multiple geometric figures)*

Stage G

1. Describe, classify, and justify relationships among types of two- and three-dimensional objects using their defining properties.

Understanding Measurement and Geometry 2008

Notes

Section 4: Solids.. Volume and Surface Area

Classifying Solids	A Solid is... Recall Polygons A Polyhedron is... A Prism is... Some Special Prisms A Pyramid is... Some Special Pyramids A Cylinder is... A Cone is... Platonic Solids
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2. Solve problems using properties of polygons and circles.

Understanding Measurement and Geometry 2008

Notes

Section 2: Perimeter and Area of Polygons

Problem Section	Length of Fence Area of Wall The Tablecloth
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Understanding Measurement and Geometry 2008

Notes

Section 3: Circles

Circumference of a Circle

- Ex. 1 - Ogg
- Ex. 2 - The Well
- Ex. 3 - The Rolling Coin
- Ex. 4 - The Semi-Circle

AREA of a Circle

- Ex. 1 - Wheel
- Ex. 2 - Pizza
- Ex. 4 - The Dog's Run
- Ex. 5 - The Hockey Rink
- Ex. 6 - Circle and Square

3. Classify and order quadrilaterals according to their properties.

Understanding Measurement and Geometry 2008

Notes

Section 2: Perimeter and Area of Polygons

Polygons... What are They?
Areas of Polygons

- A Quadrilateral is
- Area of a Rectangle- Concept
- Area of a Rectangle- Example 1
- Area of a Rectangle- Example 2
- Area of a Rectangle- Example 3
- Area of a Rectangle- Example 4
- Area of a Parallelogram- Concept
- Area of a Parallelogram- Example 1
- Area of a Parallelogram- Example 2
- Area of a Trapezoid- Introduction
- Area of a Trapezoid- Method 1
- Area of a Trapezoid- Method 2
- Area of a Trapezoid- Method 3
- Area of a Trapezoid- Method 4

Stage H

1. Create and analyze scale models using proportional reasoning.

Understanding Percent 2008

Notes

Section 4: Ratios and Proportions

Proportions

- Example 5 - Tree Height
- Example 6 - Map
- Example 7 - Scale Drawing



2. Solve problems involving similar figures.		Notes			
Understanding Fractions 2008 Section 7: Ratios and Proportions Proportions <table style="margin-left: 200px;"> <tr> <td>Example 5 -Tree Height</td> </tr> <tr> <td>Example 6 - Map</td> </tr> <tr> <td>Example 7 - Scale Drawing</td> </tr> </table>			Example 5 -Tree Height	Example 6 - Map	Example 7 - Scale Drawing
Example 5 -Tree Height					
Example 6 - Map					
Example 7 - Scale Drawing					

3. Examine the congruence or similarity of objects using transformations.		Notes					
Understanding Graphing 2008 Section 4: Transformations Transformation Machine <table style="margin-left: 200px;"> <tr> <td>Example 1</td> </tr> <tr> <td>Example 2</td> </tr> <tr> <td>Example 3</td> </tr> <tr> <td>Example 4</td> </tr> <tr> <td>Example 5</td> </tr> </table>			Example 1	Example 2	Example 3	Example 4	Example 5
Example 1							
Example 2							
Example 3							
Example 4							
Example 5							

4. Analyze properties of a combination of shapes that enable them to tessellate the plane.		Notes							
Understanding Graphing 2008 Section 4: Transformations Tessellations <table style="margin-left: 200px;"> <tr> <td>Introductions</td> </tr> <tr> <td>Examples- Example 1</td> </tr> <tr> <td>Examples- Example 2</td> </tr> <tr> <td>Examples- Example 3</td> </tr> <tr> <td>Examples- Example 4</td> </tr> <tr> <td>Examples- Example 5</td> </tr> <tr> <td>Examples- Example 6</td> </tr> </table>			Introductions	Examples- Example 1	Examples- Example 2	Examples- Example 3	Examples- Example 4	Examples- Example 5	Examples- Example 6
Introductions									
Examples- Example 1									
Examples- Example 2									
Examples- Example 3									
Examples- Example 4									
Examples- Example 5									
Examples- Example 6									

Stage I

1. Solve problems using triangle congruence and similarity of figures.		Notes	
Understanding Fractions 2008 Section 7: Ratios and Proportions Proportions <table style="margin-left: 200px;"> <tr> <td>Example 5 -Tree Height</td> </tr> </table>			Example 5 -Tree Height
Example 5 -Tree Height			



2. Extend knowledge of plane figure relationships to relationships within and between geometric solids.		Notes
Understanding Measurement and Geometry 2008 Section 4: Solids.. Volume and Surface Area Classifying Solids		
	A Solid is... Recall Polygons A Polyhedron is... A Prism is... Some Special Prisms A Pyramid is... Some Special Pyramids A Cylinder is... A Cone is... Platonic Solids	
3. Identify relationships among circles, arcs, chords, tangents, and secants.		
Not yet correlated		
4. Solve problems in, and gain insights into, other disciplines and other areas of interest such as art and architecture using geometric ideas.		Notes
Understanding Measurement and Geometry 2008 Section 1: An Introduction to Measurement		
Measurement and Your Body - Metric	Golden Ratio- Introduction Golden Ratio- Part 1 Golden Ratio- Part 2 Your Ratio	
Measurement and Your Body - US Standard	Golden Ratio- Introduction Golden Ratio- Part 1 Golden Ratio- Part 2 Your Ratio	
5. Analyze and describe the transformations that lead to successful tessellations of one or more figures.		Notes
Understanding Graphing 2008 Section 4: Transformations		
Tessellations	Introductions Examples- Example 1 Examples- Example 2 Examples- Example 3 Examples- Example 4 Examples- Example 5 Examples- Example 6	



9C Students who meet the standard can construct convincing arguments and proofs to solve problems. (Justifications of conjectures and conclusions)

Stage G

1. Create and critique arguments concerning geometric ideas and relationships, such as the number of diagonals in a polygon, or the formula for the sum of the interior angles of any polygon.

Understanding Measurement and Geometry 2008

Notes

Section 6: Angles and Polygons

Angles in Polygons

Method 1

Method 2

Exterior Angles in a Polygon

Understanding Algebra 2008

Notes

Section 4: Patterns, Formulas, Substitution

Patterns... Angles in a Polygon

Interior Angles

The Pattern

Summary

2. Justify the area formulas for triangles, parallelograms, and trapezoids based on the formula for the area of a rectangle.

Understanding Measurement and Geometry 2008

Notes

Section 2: Perimeter and Area of Polygons

Areas of Polygons

Area of a Parallelogram- Concept

Area of a Parallelogram- Example 1

Area of a Parallelogram- Example 2

Area of a Triangle- Concept 1

Area of a Triangle- Concept 2

Area of a Triangle- Example 1

Area of a Triangle- Example 2

Area of a Trapezoid- Introduction

Area of a Trapezoid- Method 1

Area of a Trapezoid- Method 2

Area of a Trapezoid- Method 3

Area of a Trapezoid- Method 4

3. Make and test conjectures about the relationships between side length and angle measure in various triangles and quadrilaterals.

Not yet correlated



4. Justify the properties of angles formed by parallel lines cut by a transversal using appropriate terminology.

Understanding Measurement and Geometry 2008

Notes

Section 6: Angles and Polygons

Parallel Lines

Examples with Parallel Lines

Example 1

Example 2

Stage H

1. Create and critique arguments concerning geometric ideas and relationships, such as congruence, similarity, the Pythagorean relationship, or formulas for surface areas or volume of simple three-dimensional objects.

[Not yet correlated](#)

2. Represent, solve, and explain numerical and algebraic relationships using geometric concepts.

[Not yet correlated](#)

3. Provide examples or counter-examples to either illustrate or disprove conjectures about geometric characteristics.

[Not yet correlated](#)

Stage I

1. Create and critique arguments concerning geometric ideas and relationships such as properties of circles, triangles and quadrilaterals.

[Not yet correlated](#)

2. Develop a formal proof for a given geometric situation on the plane.

[Not yet correlated](#)

3. Provide a counter-example to disprove a conjecture.

[Not yet correlated](#)

4. Develop conjectures about geometric situations with and without technology.

[Not yet correlated](#)



5. Justify constructions using geometric properties.

Not yet correlated

6. Describe the difference between an inductive argument and a deductive argument.

Not yet correlated

9D *Students who meet the standard can use trigonometric ratios and circular functions to solve problems.*

Stage G

1. Analyze the relationship between sides of right triangles using the Pythagorean theorem.

Understanding Exponents 2008

Notes

Section 6: Pythagorean Theorem

In This Topic

The Right Triangle

Math or Magic?

Introduction

Omar's Rope Trick #1

Omar's Rope Trick #2

Our Rope Trick

Squares on a Grid

Example 1

Example 2

Example 3

Example 4

Squares on the Sides of a Right Triangle

Triangle #1

Triangle #2

The Pythagorean Theorem

The Pattern

In General

Theorem

2. Solve problems that involve the use of proportions and the Pythagorean theorem in similar right triangles with whole number side lengths.

Understanding Exponents 2008

Notes

Section 6: Pythagorean Theorem

Example Questions

Example 1... Pole Example

Example 2... Tower Example

Example 3... Walking Example

Example 4... Lake Example

Example 5... Geometric Example

Practice Questions

5 questions (randomly generated)



Stage H

1. Recognize Pythagorean Triples.

Not yet correlated

2. Identify the basic trigonometric ratios in terms of lengths of the sides of a right triangle and an acute angle.

Not yet correlated

3. Solve for missing side lengths using the trigonometric ratios in right triangles.

Not yet correlated

4. Determine and justify the side length relationships present in 45o-45o-90o triangles and 30o-60o-90o triangles.

Not yet correlated

5. Determine the ratio of lengths of sides of a right triangle with given measures for its acute angles using appropriate technologies.

Not yet correlated

Stage I

1. Determine distances and angle measures using indirect measurement and properties of right triangles.

Not yet correlated

2. Solve problems using 45o-45o-90o and 30o-60o-90o triangles.

Not yet correlated



Goal 10

10A Students who meet the standard can organize, describe and make predictions from existing data. (Data analysis)

Stage G

1. Construct, read, interpret, infer, predict, draw conclusions, and evaluate data from various displays, including box and whiskers plots.

Understanding Graphing 2008

Notes

Section 2: Statistics

In This Topic

An Introduction

Tally Chart
Pictograph #1
Pictograph #2
Bar Graph #1
Bar Graph #2
Line Graph #1
Line Graph #2

Data... What is it?

Examples of Data

Example 1... Fast Food Earnings
Example 2... Infants Walk
Example 3... Canada and U.S.A. Forecast
Example 4... King of the Strike Out
Example 5... U.S. Stake in India
Example 6... Allergy Troubles
A Summary: Examples

2. Find, use, and interpret measures of center and spread, including interquartile range.

Understanding Graphing 2008

Notes

Section 2: Statistics

Measures of Central Tendency

Introduction
The Mean Average
The Median Average
The Mode
Summary
Another Example
Adding Data Points

3. Construct an equivalent data representation given data in a different form.

Understanding Graphing 2008

Notes

Section 2: Statistics

Presenting Data

Stem and Leaf Diagram- Example 2... Height of Students
Histogram- Example 1... Height of Students



4. Recognize potential bias in data collection methods or data presentation.

Not yet correlated

Stage H

1. Construct, read, interpret, infer, predict, draw conclusions, and evaluate data from various displays, including histograms and scatter plots.

Understanding Graphing 2008

Notes

Section 2: Statistics

In This Topic

An Introduction

Tally Chart
Pictograph #1
Pictograph #2
Bar Graph #1
Bar Graph #2
Line Graph #1
Line Graph #2

Data... What is it?

Examples of Data

Example 1... Fast Food Earnings
Example 2... Infants Walk
Example 3... Canada and U.S.A. Forecast
Example 4... King of the Strike Out
Example 5... U.S. Stake in India
Example 6... Allergy Troubles
A Summary: Examples

Presenting Data

Histogram- Example 1... Height of Students
Histogram- Example 2... Roll of Die
Scatter Plot- Example 1... The T-Shirt Tailor
Scatter Plot- Example 2... Matching

2. Determine the best measure of central tendency from mean, median, or mode.

Understanding Graphing 2008

Notes

Section 2: Statistics

Measures of Central Tendency

Introduction
The Mean Average
The Median Average
The Mode
Summary
Another Example
Adding Data Points



3. Discuss how data can be manipulated to represent different points of view based on the use of different measures of central tendency and based on different graphical displays.

Understanding Graphing 2008 Section 2: Statistics Misleading Statistics	Example 1 Example 2	Notes
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4. Discuss biased reporting of data and questions that should be asked when data is viewed.

Not yet correlated

5. Analyze graphical displays of data for possible misleading characteristics.

Understanding Graphing 2008 Section 2: Statistics Misleading Statistics	Example 1 Example 2	Notes
---	------------------------	--------------

6. Make conjectures about the possible correlation between two characteristics of a sample on the basis of scatter plots of the data and approximate lines of fit.

Understanding Graphing 2008 Section 2: Statistics Presenting Data	Scatter Plot- Example 1... The T-Shirt Tailor Scatter Plot- Example 2... Matching	Notes
Understanding Graphing 2008 Section 6: Linear Relations Line of Best Fit	Example 1 Example 2	Notes

Stage I

1. Describe the meaning of measurement data and categorical data, of univariate and bivariate data, and of the term variable.

Not yet correlated

2. Display a scatter plot, describe its shape, and determine regression coefficients, regression equations, and correlation coefficients for bivariate measurement data using technological tools.

Not yet correlated



3. Evaluate published reports that are based on data by examining the design of the study, the appropriateness of the data analysis, and the validity of conclusions.

Not yet correlated

4. Analyze two-variable data for linear or quadratic fit.

Not yet correlated

5. Make decisions based on data, including the relationships of correlation and causation.

Not yet correlated

10B *Students who meet the standard can formulate questions, design data collection methods, gather and analyze data and communicate findings. (Data Collection)*

Stage G

1. Select and use appropriate data gathering techniques.

Understanding Graphing 2008

Notes

Section 2: Statistics

Collecting Data

Throw A Die

Throw 2 Dice

Voting

Primary Data-Gathering Methods

Secondary Data-Gathering Methods

2. Formulate new questions using conjectures, and plan new studies to answer them.

Not yet correlated

Stage H

1. Formulate a question, design a study to answer the question, and collect data.

Not yet correlated

2. Analyze instruments used for surveys for errors and bias.

Not yet correlated

3. Analyze potential experiments or simulations for errors and bias.

Not yet correlated



Stage I

1. Describe the characteristics of well-designed studies, including the role of randomization in surveys and experiments.

Not yet correlated

2. Discuss informally different populations and sampling techniques.

Not yet correlated

3. Decide if a survey was `successful` in gathering intended data and justify the decision.

Not yet correlated

10C Students who meet the standard can determine, describe and apply the probabilities of events. (Probability including counting techniques)

Stage G

1. Discuss odds versus probability.

Understanding Probability 2008

Notes

Section 2: What's the Chance

Probability

What is it

Introduction 1

Introduction 2

Probability Examples

1. Coin Toss

2. Picking 1 Ball

3. Picking 2 Balls

4. Spinner #1

5. Spinner #2

6. The Bag

7. Travel Example

8. Number Example

9. Rabbit Example

10. Mailing Letters

11. Forest

12. Ahmed's Maze



2. Make and test conjectures about the results of experiments and simulations using proportionality and basic understanding of probability.

Understanding Probability 2008

Notes

Section 1: Introduction to Probability

Possible Outcomes

What Are They?

1. Coins
2. Pick 1 Ball
3. Pick 2 Balls
4. Eye Test
5. Travel

Experiment with Spinners

- Experiment 1
- Experiment 2
- Experiment 3
- Experiment 4
- Experiment 5
- Experiment 6

3. Compute probabilities for simple compound events using methods such as organized lists and tree diagrams.

Understanding Probability 2008

Notes

Section 2: What's the Chance

Probability

Introduction 1

Introduction 2

Probability Examples

1. Coin Toss
2. Picking 1 Ball
3. Picking 2 Balls
4. Spinner #1
5. Spinner #2
6. The Bag
7. Travel Example
8. Number Example
9. Rabbit Example
10. Mailing Letters
11. Forest
12. Ahmed's Maze



Stage H

1. Describe and explain complementary and mutually exclusive events using appropriate terminology.

Understanding Probability 2008

Notes

Section 7: Independent Events

What Are They

Examples

1. Toss 2 Coins
2. Replacing Marbles

Understanding Probability 2008

Notes

Section 8: Dependent Events

What Are They?

Examples

- Independent Events
Dependent Events
1. Keep the First Marble
 2. Choose the Flowers

Understanding Probability 2008

Notes

Section 1: Introduction to Probability

Experiment with Spinners

- Experiment 1
Experiment 2
Experiment 3
Experiment 4
Experiment 5
Experiment 6

Understanding Probability 2008

Notes

Section 3: Dice Probabilities

Roll One Die

Roll Two Dice

- Your Experiment
Computer's Experiment
Your Experiment
Computer's Experiment

3. Discuss the difference in empirical and theoretical probability.

Understanding Probability 2008

Notes

Section 3: Dice Probabilities

Roll One Die

Roll Two Dice

- Your Experiment
Computer's Experiment
Theoretical Probability
Your Experiment
Computer's Experiment
Theoretical Probability



4. Compute probabilities for simple compound events using a variety of methods, including area models.

Understanding Probability 2008

Notes

Section 3: Dice Probabilities

Roll Two Dice

Your Experiment
Computer's Experiment
Theoretical Probability
Patterns
Summary

Understanding Probability 2008

Notes

Section 4: Binomial Probabilities

Binomial Probabilities... What are They?

Flipping a Coin... Once

Flipping a Coin... Twice

Flipping a Coin... Three Times

Summary

Practice Questions

5 questions (randomly generated)

5. Identify situations where dependent and independent events occur.

Understanding Probability 2008

Notes

Section 7: Independent Events

In This Topic

What Are They

Examples

Probability

1. Toss 2 Coins
2. Replacing Marbles
1. Coin and Die
2. Balls
3. Letter Tiles

Understanding Probability 2008

Notes

Section 8: Dependent Events

In This Topic

What Are They?

Examples

Probability

Independent Events
Dependent Events
1. Keep the First Marble
2. Choose the Flowers
1. Keep the First Ball
2. Keep the First Tile
3. Keep the First Flower



6. Determine probabilities using simple counting techniques.

Understanding Probability 2008

Notes

Section 2: What's the Chance

Probability

What is it

Introduction 1

Introduction 2

Probability Examples

1. Coin Toss

2. Picking 1 Ball

3. Picking 2 Balls

4. Spinner #1

5. Spinner #2

6. The Bag

7. Travel Example

8. Number Example

9. Rabbit Example

10. Mailing Letters

11. Forest

12. Ahmed's Maze

7. Discuss situations where permutations and combinations should be used in counting outcomes

Not yet correlated

Stage I

1. Determine geometric probability based on area.

Understanding Probability 2008

Notes

Section 5: Geometric Probabilities

In This Topic

Introduction

The Parachutist

Dartboard

Instructions

Your Experiment

Computer's Experiment

Theoretical

Win a Prize

The Fly

Baby Walk

Practice Questions

6 questions (randomly generated)



2. Calculate probability using Venn diagrams.		
Not yet correlated		
3. Determine simple probabilities using frequency tables.		
Understanding Probability 2008		Notes
Section 3: Dice Probabilities		
Roll One Die	Your Experiment Computer's Experiment	
Roll Two Dice	Your Experiment Computer's Experiment	
4. Construct empirical probability distributions using simulations.		
Understanding Probability 2008		Notes
Section 1: Introduction to Probability		
Experiment with Spinners	Experiment 1 Experiment 2 Experiment 3 Experiment 4 Experiment 5 Experiment 6	
Understanding Probability 2008		Notes
Section 3: Dice Probabilities		
Roll One Die	Your Experiment	
Roll Two Dice	Your Experiment	
5. Describe the concepts of conditional probability.		
Not yet correlated		
6. Develop an understanding of permutations and combinations as counting techniques.		
Not yet correlated		

